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Evaluation of Financial Risk in Apple company

Posouzení finančního rizika ve společnosti Apple

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1. Introduction
2. Description of the Financial Analysis Methodology
3. Characterization of the Company
4. Financial Analysis and Risk Evaluation of the Company
5. Conclusion

Bibliography
List of Abbreviations
Declaration of Utilisation of Result from the Bachelor Thesis
List of Annexes
Annexes

References:

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The declaration

"Hereby I declare that I elaborated the entire thesis, including all annexes, independently."

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Contents

1 Introduction

Financial analysis refers to an assessment of the viability, stability, and profitability of a business, sub-business or project. It is performed by professionals who prepare reports using ratios that make use of information taken from financial statements and other reports. During the analysis, we can understand the company history, company's operating conditions, future trends and company solvency. Besides, it finally concludes whether the company is worthy of investors choice and points out which parts of the company needs to improve and enhance. Financial data is the basis of financial analysis and it includes three main statements of balance sheet, income statement and cash flow statement. we will use specific data to calculate and process this data using a range of specialized formulas and methods. At last, we will analyze the significance of the conclusion.

The thesis focuses on Apple Corporation. Apple operates in electronic industry and it is a leader of electronic production in the world. Apple is the biggest phone manufacture of the world and the biggest PC manufacture of the world. Apple's main business is electronic technological products.

The goal of the thesis is to evaluate the financial performance of Apple Corporation by using the data of financial annual reports for period 2015-2019.

The thesis is divided into five main chapters. The first chapter is the introduction and the last one is conclusion.

The second chapter is about methods of financial analysis that will be used in the thesis when the company will be analyzed. In this part, we introduce three methods, common-size analysis and financial ratio analysis and the important DuPont analysis. The third chapter, we will introduce the basic information of Apple Corporation, important historical events and the company's business development strategy. The fourth chapter is the most important chapter. Based on Apple Corporation's five-year annual report data, the chart is analyzed based on the theory covered in Chapter 2. We

will evaluate the risk of the company and assess the company's financial situation, conduct financial ratio analysis, and apply common-size analysis.

2 Description of the Financial Analysis Methodology

In this chapter, we will introduce and explain the financial analysis methods that will be used in the thesis. This chapter can be divided into three parts. Firstly, we will introduce three main statements, which are balance sheet, income statement and cash flow statement. Secondly, we will explain common-size analysis, which includes vertical-common-size analysis and horizontal-common-size analysis. Finally, we will introduce financial ratio analysis and DuPont analysis.

The financial analysis of a company is a process of selecting, evaluating, and interpreting financial data, along with other pertinent information, in order to formulate an assessment of the company's present and future financial condition and performance. So first we focus on collecting the various financial statements of the company analyzed.

This chapter is based on ROSS, S. A. (2018) and ZMEŠKAL (2004).

2.1 Financial Statements

Financial statements are accounting statements that reflect the capital and profit status of an enterprise or a budget unit for a certain period of time. Financial statements include balance sheets, income statements, cash flow statements or statements of changes in financial position, schedules and notes.

Balance sheet reflects a company's assets, liabilities, owner's equity at a given point time.

Income statement obviously shows company's income, expense, through calculation we can know the profits over a stated time period. This statement pays attention to show operation activities.

A statement of changes in equity reports on the changes in equity of the company over a stated time period.

Cash flow statement shows a company's cash flow activities, specially its operating, investing and financing activities over a stated time period. And cash flow includes cash inflows and cash outflows.

As we know, a financial statement of a company is very complex. So, we used to use notes to explain various statements detailly. It's worth noting that balance sheet reports a given point time, income statement, cash flow statement and statement of changes in equity report a stated time period.

2.1.1 Balance Sheet

A balance sheet is an accounting statement that reflects all the assets, liabilities and owners' equity of an enterprise at a certain date (such as the end of the month, quarter and year). It's the static embodiment of business activities and it provides a basis for calculating rates of return and evaluating the company's capital structure. In addition to the function of internal debugging, management direction, to prevent abuses, it can also let all readers in the shortest time to understand the operating conditions of the enterprise.

Balance sheet is a very important financial statement in accounting, the most important function is to show the operating conditions of the enterprise.

The formula used for a balance sheet is following:

$$Assets = Liabilities + Owners'Equity \tag{2.1}$$

In terms of the basic composition of the statement, the balance sheet mainly contains the assets part of the statement on the left, and the liabilities and shareholders' equity part of the statement on the right. Assets usually includes company's fixed assets, current assets, intangible and deferred assets and the other assets. Such as cash, securities, accounts receivable, land, machinery and so on. Liabilities usually have current liabilities, long-term liabilities. Such as wages payable, tax, rent payable and so on. But always liabilities plus owners' equity equals assets.

By the way, the international balance sheet was changed to Statement of Financial Position (SOFP) in 2008.

Chart 2.1: Structure of Balance Sheet

<table>
<tr><th colspan="2">Balance Sheet</th></tr>
<tr><td>Assets (Property)</td><td>Liabilities & Equity
(Capital)</td></tr>
<tr><td rowspan="2">Fixed Assets</td><td>Equity</td></tr>
<tr><td rowspan="2">Long Term Liabilities
(Loans)</td></tr>
<tr><td>Current Assets</td></tr>
<tr><td></td><td>Current Liabilities</td></tr>
</table>

Source: Fundamentals of Financial Management

The balance sheet is a static statement that does not show trends. Therefore, the balance sheet should be compared with the balance sheet of previous periods. It should also be compared with other companies in the same industry, because different industries have different ways of financing. At the same time, there are many ratios that can be drawn from the balance sheet to help investors understand the health of a company.

2.1.2 Income Statement

An income statement is a statement by a company that reports the sales or income earned during a period (usually one year), the reasonable cost of the goods sold, and the profit (net income) after the costs are removed. Income statement also calls Statement of profit and loss or P/L statement. The income statement is one of a company's main financial statements that shows their profit and loss over a time period. The statement shows the company's revenue, costs, gross profit, selling and administrative expense, taxes expense, other expense and income. Through calculation, we can know the net income (profit) and the profitability of the company.

Income statement identity:

$$Revenues - Cost\ (expense) = Net\ income\ (profit)\ or\ loss \tag{2.2}$$

Chart 2.2: The Structure of Income Statement

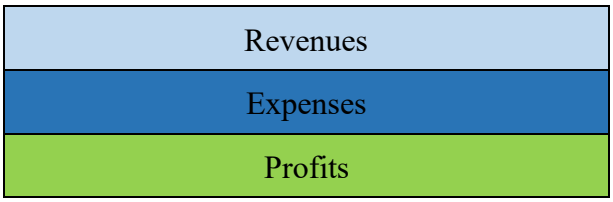


Chart 2.3: Example of Income Statement

Revenue	xxx
Cost of sales	xxx
Gross profit	xxx
Taxes expense	xxx
Administrative expense	xxx
Distribution expense	xxx
Other expense	xxx
Total expense	xxx
Net profit	xxx

Source: Fundamentals Corporate Finance

Revenues divided into two parts, operating revenue and non-operating revenue. Operating revenue refers to the revenue from the main business or other business. Refers to the monetary income obtained by a commercial enterprise from the sale of goods or the provision of services within a certain period of time. Non-operating revenue refers to the revenue which is not directly related to the production and operation process and should be included in the current profit. It's an integral part of the financial results of the enterprise. For example, confiscate packing goods deposit income, recover to transfer into the worker arrears, fine net income and so on.

2.1.3 Cash Flow Statement

The cash flow statement is a financial statement reflecting the influence of the operating activities, investment activities and financing activities of an enterprise on its

cash and cash equivalents within a certain period (such as monthly, quarterly or annual). The cash flow statement is a substitute for the original statement of changes in financial position or statement of fund flow. It describes in detail the cash flow generated by the company's operations, investments and financing activities.

The cash flow statement as an analytical tool, the main function is to determine the short-term viability of a company, especially its ability to pay bills. It is a statement that reflects the cash inflow and outflow dynamics of a company in a certain period of time. Its composition is consistent with the balance sheet and income statement. Through the cash flow statement, the influence of operating activities, investment activities and financing activities on the cash inflow and outflow of enterprises can be summarized and reflected. It is better than the traditional income statement to provide a better basis for evaluating the profit realized, financial status and financial management of enterprises.

The cash flow statement provides evidence of the health of a company. If the cash flow from a company's operations cannot pay dividends and maintain the productive capacity of its capital stock, and it has to borrow to meet those needs, this gives a warning that the company cannot sustain normal spending over the long term. The cash flow statement reveals the internal development of the company by showing the insufficient cash flow generated by the operation and the necessity to borrow money to pay the dividend level which cannot be supported permanently.

2.2 Common-size Analysis

Common-size analysis is the restatement of financial statements with a fixed number as a common denominator or reference, allowing us to identify trends and major differences. There are two types of common-size analysis. First one is vertical common-size analysis, in which we compare the accounts in a given period to a benchmark item in that same year. Second one is horizontal common-size analysis, in which we use the accounts in a given period as the benchmark or a base period and restate every account

in subsequent period as a percentage of the base period's same account. This ratio shows the ratio of assets, liabilities, expenses to total assets, liabilities, income.

2.2.1 Vertical Common-size Analysis

In a financial statement, the data of the items in the table are compared with the total (or the total of the statements) to obtain the position, importance and change of the item in the total. Vertical analysis focuses more on the internal structure analysis of various items in the report. It just does a vertical analysis of the current income statement or balance sheet, for example, all items in the income statement are expressed as a percentage of operating income, and items in the balance sheet are expressed as a percentage of total assets.

We will calculate by using this formula:

$$Percentage\ of\ Base = \frac{The\ reseach\ object}{Total\ assets} \times 100\% \tag{2.3}$$

2.2.2 Horizontal Common-size Analysis

Horizontal common-size analysis is a time-series analysis and is useful for identifying trends and growth in accounts over time. Whereas each account in a vertical common-size analysis is restated each year as a proportion of the reference account, each account in a horizontal common-size analysis is instead compared with the value of that same account in a benchmark year.

We will calculate by using this formula:

$$\%\Delta I_t = \frac{I_t - I_{t-1}}{I_{t-1}} \times 100\% \tag{2.4}$$

I_t stands for amount of the item in comparison year, and I_{t-1} stands for the amount of item in base year.

2.3 Financial Ratio Analysis

Financial ratio analysis is the use of financial accounting and other information to assess a company's financial performance and financial condition. Specially, financial

ratio analysis uses comparisons of financial data in the form of ratios to assess a company's financial health and profitability.

2.3.1 Activity Ratios

An activity ratio is a type of financial metric that indicates how efficiently a company is leveraging the assets on its balance sheet, to generate revenues and cash. Commonly referred to as efficiency ratios, activity ratios help analysts gauge how a company handles inventory management, which is key to its operational fluidity and overall fiscal health.

Turnover Ratios

We use turnover as a measure of a company's efficiency in using its assets. Turnover is a measure of output compared with the investment used to produce it. The most common turnover rates are inventory turnover, current asset turnover, total asset turnover, and receivable accounts turnover.

Inventory Turnover

In accounting, inventory turnover is a measure of the number of times an inventory is sold or used over a period of time such as a year. The calculation is whether businesses have too much inventory relative to their level of sales. A low turnover rate means sales are poor, so there is an overhang of inventory. High ratios mean either strong sales or ineffective purchases.

We will calculate by using this formula:

$$Inventory\ Turnover = \frac{Cost\ of\ goods\ sold}{Average\ inventory\ at\ cost} \tag{2.5}$$

Current Asset Turnover

It's an activity ratio measuring firm's ability of generating sales through its current assets (cash, inventory, accounts receivable, etc.).

We will calculate by using this formula:

$$Current\ Asset\ Turnover = \frac{Net\ sales}{Average\ current\ asset} \tag{2.6}$$

Total Asset Turnover

Total asset turnover is the ratio of revenues to total assets. This ratio indicates the extent to which the investment in total assets results in revenues.

We will calculate by using this formula:

$$Total\ Asset\ Turnover = \frac{Total\ revenue}{Average\ total\ assets} \tag{2.7}$$

Receivable Accounts Turnover

Accounts receivable turnover or debtor turnover is an accounting measure of a company's effectiveness in extending credit and collecting debt. Accounts receivable turnover is a rate of activity that measures how efficiently a company uses its assets.

We will calculate by using this formula:

$$Receivable\ Accounts\ Turnover = \frac{Total\ revenue}{Average\ receivables} \tag{2.8}$$

Working Capital Turnover

Working capital turnover is a ratio that measures how efficiently a company is using its working capital to support a given level of sales. Also referred to as net sales to working capital, work capital turnover shows the relationship between the funds used to finance a company's operations and the revenues a company generates as a result.

We will calculate by using this formula:

$$Working\ Capital\ Turnover = \frac{Total\ revenue}{Average\ working\ capital} \tag{2.9}$$

Operating Cycle and Its Components

The operating cycle is the average time it takes a business to generate an initial cash outlay for producing goods, selling goods, and receiving cash from customers in exchange for goods. This is useful for estimating the amount of working capital a company needs to maintain or grow its business.

Number of Days of Inventory

We calculate inventory days by calculating the ratio of inventory quantity to average daily cost of sales.

We will calculate by using this formula:

$$Number\ of\ Days\ of\ Inventory = \frac{Inventory}{Average\ day's\ cost\ of\ goods\ sold} \quad (2.10)$$

Number of Days of Receivables

We can extend the same logic from inventory turnover to the estimated number of days of accounts receivable, the length of time between sales (when accounts receivable was generated) and accounts receivable being collected in cash. If the accounts receivable balance at the end of the year represents the accounts receivable on any given day of the year, it takes about a few days on average for the accounts receivable to be collected.

We will calculate by using this formula:

$$Number\ of\ Days\ of\ Receivables = \frac{Accounts\ receivable}{Average\ day's\ revenue} \quad (2.11)$$

Number of Days of Payables

We can apply the same logic to accounts payable.

We will calculate by using this formula:

$$Number\ of\ Days\ of\ Paybales = \frac{Accounts\ payable}{Average\ day's\ purchase} \quad (2.12)$$

If we assume all purchases are made on credit, the total purchases for the year would be the cost of goods sold (COGS) less any amounts included in this cost of goods sold that are not purchases, such as depreciation.

$$Purchase = COGS + Ending\ inventory - Beginning\ inventory \quad (2.13)$$

Operating Cycle

The operating cycle is the average time it takes a business to generate an initial cash outlay for producing goods, selling goods, and receiving cash from customers in exchange for goods.

We will calculate by using this formula:

$$Operating\ Cycle = Number\ of\ Days\ of\ Inventory + Number\ of\ Days\ of\ Receivables \quad (2.14)$$

2.3.2 Liquidity Ratios

In corporate finance, we call liquidity the ability of a company to convert assets into cash and use them to meet short-term obligations. We call the assets that can be converted into cash in a short period of time the current assets of the company. These assets are listed as current assets in the financial statements.

The liquidity ratio is an important financial indicator to determine the debtor's ability to repay the current debt without increasing external capital. Liquidity ratios measure a company's ability to service its debt obligations and its margin of safety by calculating metrics including current, quick, and operating cash flow ratios. Analyze current liabilities against current assets to assess the coverage of short-term liabilities in an emergency.

Current Ratio

Current ratio is a measure of a company's ability to repay short-term debt or debt that matures within a year. It tells investors and analysts how to make the most of the current assets on their balance sheets to pay their current debts and other payables.

We will calculate by using this formula:

$$Current\ Ratio = \frac{Current\ assets}{Current\ liabilities} \quad (2.15)$$

Quick Ratio

The quick ratio is a measure of how well a company can meet short-term liabilities.

We will calculate by using this formula:

$$Quick\ Ratio = \frac{Cash + Short-term\ securities + Receivables}{Current\ liabilities} \quad (2.16)$$

Cash Flow Ratio

The cash flow ratio is a measure of can a company meet current liabilities by using its operating cash income. The ratio is higher, is better.

We will calculate by using this formula:

$$Cash\ Flow\ Ratio = \frac{Cash+short-term\ investments}{Current\ liabilities} \quad (2.17)$$

2.3.3 Solvency Ratios

Solvency ratios measure the ability of a company to pay its long-term liabilities and the interest on the debt. Solvency ratios as a part of financial ratio analysis, help the business owners determine the chances of the firm's long-term survival. Sometimes solvency ratios are confused with liquidity ratios, they are both assess a company's health. But solvency ratios assess a company's long-term health and evaluate long-term debt and interest on the debt; liquidity ratios assess a company's short-term ability to meet current obligations and turn assets into cash quickly.

Debt-to-Asset Ratio

The debt-to-asset ratio is an indicator of a company's financial leverage. It tells you the percentage of a company's total assets that were financed by creditors. Debt includes current debt and long-term liabilities.

We will calculate by using this formula:

$$Debt - to - Asset\ Ratio = \frac{Total\ debt}{Total\ assets} \quad (2.18)$$

Long-term Debt-to-Asset Ratio

The long-term debt-to-asset ratio is a measure of a company's long-term debt as a percentage of its total assets.

We will calculate by using this formula:

$$Long - term\ Debt - to - Asset\ Ratio = \frac{Total\ long-term\ debt}{Total\ assets} \quad (2.19)$$

Debt-to-Equity Ratio

The debt-to-equity ratio (D/E) is a measure of the company's ability of using shareholder's equity to finance company's debt.

We will calculate by using this formula:

$$Debt - to - Equity\ Ratio = \frac{Total\ liabilities}{Total\ shareholder's\ equity} \quad (2.20)$$

Financial Leverage

Financial leverage actually has multiple definitions, based on the concept of using borrowed money. The money usually comes from fixed-income securities, such as debt and preferred or common stock, to boost a company's return on investment. Financial leverage has two sides. On the positive side, it can enable the company to expand rapidly. On the negative side, it also brings a lot of risks.

We will calculate by using this formula:

$$Financial\ Leverage = \frac{Total\ assets}{Total\ shareholder's\ equity} \quad (2.21)$$

Cash Flow-to-Debt Ratio

We will calculate by using this formula:

$$Cash\ Flow - to - Debt\ Ratio = \frac{Operating\ cash\ flow}{Total\ debt} \quad (2.22)$$

2.3.4 Profitability Ratios

Profitability ratios are a class of financial metrics, it can assess a company's ability of its revenue, operating costs, assets and shareholder's equity by using data from a certain point in time.

Gross Profit Margin

The gross profit margin is a metric use to assess a company's financial health. And it used to compare with another company, usually high gross profit margin with high profit efficiency.

We will calculate by using this formula:

$$Gross\ Profit\ Margin = \frac{Net\ sales - Cost\ of\ goods\ sold}{Net\ sales} \quad (2.23)$$

Operating Profit Margin

Operating profit margin is a profitability or performance ratio that reflects the percentage of profit a company produces from its operating, the profit is before interest and taxes. Operating profit margin vary from industry to industry and is often used to compare a company with similar companies in the same industry.

We will calculate by using this formula:

$$Operating\ Profit\ Margin = \frac{Operating\ income}{Total\ revenue} \tag{2.24}$$

Net Profit Margin

Net profit margin is the percentage of profit left all expenses from sale process. It reflects how much profit a company can get from its total sales. Net profit margin measures a company's degree of success. High net profit margin means the company has success product price and good cost of goods.

We will calculate by using this formula:

$$Net\ Profit\ Margin = \frac{Net\ income}{Total\ revenue} \tag{2.25}$$

Pretax Profit Margin

Pretax profit margin means the earnings before taxes to total revenue.

We will calculate by using this formula:

$$Pretax\ Profit\ Margin = \frac{Earnings\ before\ taxes}{Total\ revenue} \tag{2.26}$$

Operating Return on Asset

Operating return on asset (OROA) is an efficiency financial ratio used to calculate the percentage of return a company receives from investing the money in its assets in its operations. In other words, it's the percentage of profit the company can make from buying new equipment. This shows how much value has been added to the company's investment.

We will calculate by using this formula:

$$Operating\ Return\ on\ Asset = \frac{Operating\ income\ (EBIT)}{Average\ total\ assets} \tag{2.27}$$

Return on Asset

Return on asset (ROA) is an indicator of how profitable a company is relative to its total assets. It reflects the efficiency of using assets to get profit.

We will calculate by using this formula:

$$Return\ on\ Asset = \frac{Net\ income}{Average\ total\ assets} \tag{2.28}$$

Return on Equity

Return on equity (ROE) is a measure of return on investment relative to shareholders' equity and reflects a company's ability to generate net profit from net asset value. Companies typically use earnings to reinvest for greater returns and return on equity reflects this ability.

We will calculate by using this formula:

$$Return\ on\ Equity = \frac{Net\ income}{Average\ sharehold's\ euiqty} \tag{2.29}$$

2.3.5 Dupont Analysis

Dupont analysis is a method of analyzing the financial condition of a business. Dupont began using the method in the 1920s by Donaldson brown of the company. The Dupont analysis divides return on equity (ROE) into three components: profit margin, asset turnover, and equity multiplier/financial leverage. Investors can use this analysis to compare the operating efficiency of two similar companies. Managers can use Dupont analysis to identify strengths or weaknesses that should be addressed.

$$Return\ on\ Asset = \frac{Net\ income}{Average\ total\ assets} = \frac{Net\ income}{Revenue} \times \frac{Revenue}{Average\ total\ assets} \tag{2.30}$$

Or

$$ROA = Net\ Profit\ Margin \times Total\ Asset\ Turnover \tag{2.31}$$

And we can divide return on asset into four parts.

$$ROA = \frac{Operating\ income}{Revenue} \times \frac{Income\ before\ taxes}{Operating\ income} \times (1 - \frac{Taxes}{Income\ before\ taxes}) \times \frac{Revenue}{Average\ total\ asset} \quad (2.32)$$

Or

$$ROA = Operating\ Profit\ Margin \times Effect\ of\ Nonoperating\ Items \times Tax\ effcet \times Total\ Asset\ Turnover \quad (2.33)$$

We also can calculate return on equity with Dupont analysis.

$$Return\ on\ Equity = \frac{Net\ income}{Average\ sharehold's\ equity} = \frac{Net\ income}{Revenue} \times \frac{Revenue}{Average\ total\ asset} \times \frac{Average\ total\ asset}{Average\ sharehold's\ equity} \quad (2.34)$$

Or

$$ROE = \frac{Operating\ income}{Revenue} \times \frac{Revenue}{Average\ Total\ asset} \times \frac{Income\ before\ taxes}{Operating\ income} \times \frac{Average\ total\ asset}{Averege\ shareholder's\ equity} \times (1 - \frac{Taxes}{Income\ before\ taxes}) \quad (2.35)$$

3 Characterization of the Company

In this chapter, we will introduce Apple Corporation about its historical background, products, and position in the industry, and sales.

3.1 Apple Corporation Profile

Apple Inc. formerly known as Apple computer Inc., it was established in Cupertino, California on April 1, 1976, and incorporated January 3, 1977. Its core business is electronic technology products, the global PC market share of 7.96%. The Apple II helped fuel the personal computer revolution in the 1970s, followed by the Macintosh in the 1980s. Best known for its Apple II, Macintosh computers, iPod digital music players, iTunes music store and iPhone, the company's software applications include Mac OS, iLife, iWork and internet applications such as Safari and QuickTime, among others, it is known for its innovation among high-tech companies. On January 9, 2007, apple computer Inc. changed its name to apple Inc. Steve Jobs was a co-founder and was still the CEO until August 2011, and now the CEO of Apple is Tim Cook.

Apple Inc. went public on December 12, 1980 and reached a market value of $623.5 billion in 2012. On August 21, 2012, Apple became the world's largest listed company by market capitalization. The gradual tapering of the fed's bond purchases quickly affected not only commodity and stock markets, but also bond markets. As of June 2014, Apple Inc. has been the world's largest company by market value for three consecutive years. Apple ranked 15th on the 2014 Fortune 500 List. On September 30, 2013, Apple surpassed Coca-Cola as the world's most valuable brand in Omnicom's "best global brands" report. In 2014, the Apple brand surpassed Google to become the most valuable brand in the world.

Apple specializes in developing, manufacturing, and selling personal computers, servers, peripherals, computer software, online services, and personal digital assistive devices. It is the third largest personal computer supplier in the world in 1995, ranking the 11th in the "top 100 information technology companies in the world" and the 25th

in the "top 50 software manufacturers in the world". 1994-1995 years in the global multimedia market share ranked first.

As of June 2019, Apple had opened 506 retail stores in 25 countries and regions around the world. As of 2019, the company had approximately 137,000 full-time equivalent employees. As of September 2019, Apple stock (AAPL) market value was $237, compared with last year's market value, it is down 1.25%. As of September 2019, Apple's revenue was $260.174 million, decreased of 2.04% over 2018, net profit was $55.256 billion, decreased of 7.18% over 2018.

As the yield curve rises, the market value of bonds held by investors is shrinking. Apple's $17 billion in corporate debt has lost $280.6 million in value since it was issued.

The management cultural concepts of technology, environmental protection, humanity, intelligence and innovation in Apple's corporate culture have a significant impact on the sustainable development of the enterprise. Through the independent development and design of software in science and technology, Apple Inc. elevates the company's culture to the ranks of individual production, so that it has its own independent advantages, and plays a leading role in the electronic technology industry. In terms of environmental protection, every design and promotion of new products has achieved relevant product design. Although some series of products are upgraded with more powerful functions than the original ones and the screen size is enlarged, the materials are usually reduced by 50%, and the emissions are also reduced by 35%, so as to achieve low carbon emission reduction in the true sense of production.

Apple finally through the upgrading of products will increase the production of the company to the unique innovation spirit of enterprise, it inspired the creative potential of people, constantly breakthrough the limit of the electronic use, environmental protection and design combined with humanization, coupled with the unique creative design concept, make consumers use comfortably, without more advertising, the superiority of the product itself is the best advertising, as long as the company will maintain enterprise culture, enterprise development to create brilliant.

3.1.1 History of Apple Inc.

1971—— Steve Jobs and Steve Wozniak became friends when Jobs was 16 years old and Wozniak was 21.

1976—— Apple Computer Inc. was founded by Steve Jobs, Steve Wozniak and Ron Wayne. The first Apple computer was assembled in the garage of Jobs' family.

1977—— Apple Computer Inc. was incorporated. In the same year, Apple II microcomputer was introduced.

1980—— Apple Computer Inc. went public and earned over $100 million.

1983—— Apple produced the Lisa; it was the world's first personal computer that combined a graphical user interface with a mouse.

1984—— Apple Macintosh was released， the computer was equipped with a new and revolutionary operating system, which became a milestone in the development of the computer industry.

1985—— Jobs resigned as chairman of Apple Computer Inc.

1993—— Apple introduced the Newton, which created the Personal Digital Assistant. But in the 1990s, Microsoft's new users vastly outpaced apple's, and apple's market share fell from 20% to 5%.

2001—— Apple introduced Mac OS X, in the same year, Apple introduced iPod and iTunes, and iPod beat SONY's Walkman to become the world's largest portable music player by market share. In May 2001, Apple announced the opening of apple retail stores.

2002—— Apple introduced iMac G4.

2004—— Apple introduced iMac G5, it was the thinnest computer in the world at the time.

2005—— iPod Nano and iPod Shuffle were introduced.

2006—— iPod Classic and iPod Nano2 were introduced.

2007—— iPhone was introduced.

2008—— iPhone 3G and MacBook Air were introduced, and MacBook Air was the thinnest laptop in the world at the time.

2009—— iPod Nano5 was released.

2010—— iPad was introduced.

2011—— Steve Jobs resigned. In October, Steve Jobs passed away.

2012—— With a market value of more than $520 billion, Apple holds the No. 1 spot in the world. And iPhone5 was introduced.

2014—— iPhone6 and iPhone 6 plus were introduced.

2017—— IDC released its global smartphone sales data for 2016, and Apple ranked second.

2018—— Apple ranks fourth on the Fortune 500 List, and Apple reported third-quarter fiscal 2018 (Q2) results, with revenue of $53.265 billion, up 17% from $45.408 billion a year earlier. Net income was $11.519 billion, up 32% from $8.717 billion a year earlier.

3.1.2 Products

Apple's current businesses include designing, developing and selling consumer electronics, computer software, online services and personal computers. The company is best known for hardware such as the Mac, the iPod media player, the iPhone smartphone and the iPad tablet. Online services include iCloud, iTunes Store and App Store. Consumer software includes macOS, iOS, iPad OS, watch OS, and the tv OS operating system, the iTunes multimedia browser, the Safari web browser, and the iLife and iWork creative and productivity packages. The Company’s primary products are discussed below.

iPhone

The iPhone is a series of smart phones developed and sold by apple Inc., which uses on the iOS mobile operating system developed by apple Inc. The first iPhone was introduced by Steve jobs on January 9, 2007. And went on sale on June 29, 2007. The latest iPhone models are the iPhone 11, iPhone 11 Pro and iPhone 11 Pro Max, released

on September 10, 2019. The iPhone combines a mobile phone, an audio player and an Internet communications device. Based on the company's multi-touch technology, the iPhone has email, web browsing, search and mapping capabilities. The iPhone automatically syncs content from a user's iTunes library, as well as contacts, bookmarks and email accounts. The iPhone allows users to access the iTunes store to download audio and video files, as well as a variety of other digital content and applications.

iPod

The company's range of portable digital music and media players includes the iPod touch, iPod Nano, iPod shuffle and iPod classic. All iPods support iTunes. The iPod touch is a flash-based iPod with a widescreen display and multi-touch user interface. The iPod touch allows users to access the iTunes store to download audio and video content, as well as a variety of digital applications. The iPod Nano is a flash-based iPod with the company's multi-touch interface that allows users to browse their music collections by tapping or sliding the screen. The iPod shuffle is a flash-based iPod with a clickable dashboard to control music playback and voice-over technology, allowing consumers to hear song titles, artists and playlist names. The iPod classic is a portable digital music and video player based on a hard drive.

iPad

The iPad is a multipurpose mobile device, the equivalent of a microcomputer. It can browse the web, read and send emails, view photos, watch videos, listen to music, play games, read e-books and more. The iPad is based on the company's multi-touch technology, allowing customers to connect their apps and content in a more interactive way. The iPad allows users to access the iTunes store to download audio and video files, as well as a variety of other digital content and apps. The first iPad was released on April 3, 2010, and the iPad mini was introduced in 2012. Since its launch in 2010, more than 220 million iPads have been sold (as of October 2014), accounting for 81 percent of the global tablet market. The latest iPad are the iPad mini5 and iPad Air3, which were released on March 18, 2019.

MacBook

The MacBook is the Macintosh, a notebook computer developed by apple Inc. It was first launched in May 2006. The MacBook series have portable MacBook Air and professional MacBook Pro. It uses Mac OS system, and it has independent application store, professional office program. Its main feature is its lightness.

iTunes

iTunes is a media player application launched by apple computer on January 10, 2001 at the Macworld Expo in San Francisco. It is used to play and manage digital music and video documents. It is one of the most popular main tools for managing files on iPod and iOS devices. In addition, iTunes can connect to the iTunes Store (provided there is an Internet connection and apple has opened the service locally) to download purchased digital music, music videos, TV shows, iOS apps (removed after iOS 11), various podcasts, and standard feature films. The computer-based Apple Music service has been integrated into iTunes since 2015. On June 4, 2019, Apple announced that it would no longer offer iTunes in subsequent macOS, iOS and other systems, but would instead split it into three apps, “Music” containing the original Apple Music and iTunes Store, “TV” containing the original TV program, and “podcasts” containing the original podcasts.

App Store

App store is divided into app store (iOS) and Mac app store (macOS). App Store is a digital mobile application distribution platform created and maintained by Apple for its iPhone, iPod Touch and iPad products. It allows users to browse and download some apps developed by iOS SDK or Mac SDK from iTunes Store. Depending on the distribution of the application, users can download it for a fee or for free. Apps can be downloaded directly to iOS devices and include games, calendar management, dictionaries, galleries, and a host of useful software. Like the iTunes Store, apple makes money from the App Store through a share of App sales. Apple and its partners get 30%

of all app sales by third-party developers, with developers getting the remaining 70%. In 2018, App store revenue was $46.6billion and profit was $13.98billion.

The Mac App Store is a digital distribution platform for OS X applications developed by apple. In January 2011, the Company opened the Mac App Store allowing customers to discover, download and install applications for their Macs. The Mac App Store offers applications in education, games, graphics and design, lifestyle, productivity, utilities and other categories.

iCloud

iCloud is an online syncing storage service and cloud computing service provided by apple. The initial storage space is 5GB, and users can buy storage space. Users can store music, photos, App data, documents, contacts and calendars in iCloud and wirelessly push them to all of their devices that support iCloud syncing, rather than using a cable. Now iCloud can store data from third-party apps and sync it with apple devices. Apple thinks iCloud as more powerful than Google and amazon's cloud-based music services, with "scan and match" in the main. The iCloud service lets users access previously purchased music from iTunes on any device.

Wearable devices and home accessories

Apple wearable devices are divided into Apple Watch and Apple AirPods. The Apple Watch is a series of smartwatches made by Apple Inc. It combines fitness tracking and health-oriented features and integrates with iOS and other Apple products and services. The Apple Watch is primarily used in conjunction with a user's iPhone for functions such as configuring the Watch, calling and texting, and syncing data with iPhone apps, but can be connected to a wi-fi network separately for certain tasks. Apple Watch was launched in April 2015 and quickly became the best-selling wearable device. It sold 4.2 million in the second quarter of fiscal 2015.

The AirPods are bluetooth wireless headsets from apple and were released on September 7, 2016.

HomeKit is Apple's software framework that enables users to use Apple device configurations to communicate with and control smart home devices.

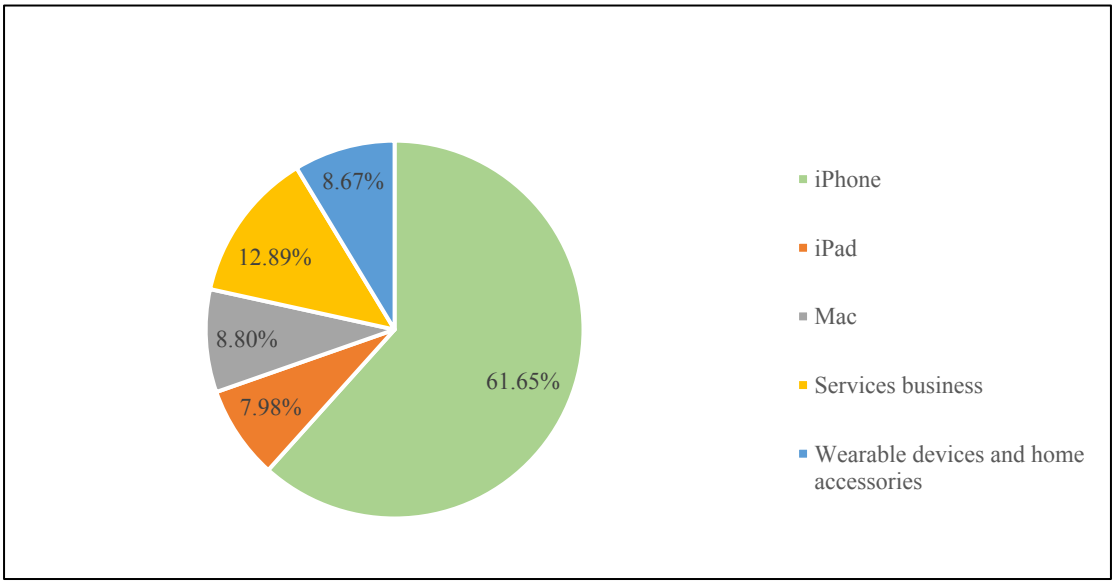
Table 3.1: Each product accounts for Apple's share of revenue in recent five years (January)

	2015	2016	2017	2018	2019
iPhone	68.61%	68.06%	69.40%	69.74%	61.65%
iPad	12.04%	9.34%	7.06%	6.64%	7.98%
Mac	9.31%	8.89%	9.25%	7.81%	8.80%
Service business	6.43%	7.98%	9.15%	9.59%	12.89%
Wearable devices and home accessories	3.61%	5.73%	5.14%	6.22%	8.67%

Table 3.2: Apple Inc. net income in recent five years (in million, USD)

	2015	2016	2017	2018	2019
Net income	53,394	45,687	48,351	59,531	55,256

Figure 3.1: The revenue of each product accounts for Apple's net income in recent five years (January)



Source: Apple annual report

Figure 3.1 shows the portfolios of products in recent five years. The net income of Apple is $55.256billion in 2019. Through calculation, the number one is iPhone, which accounts Apple's revenue is 61.65%, or $34.065billion. Second is services business, which accounts Apple's revenue is 12.89%, or $7.122billion. Third is Mac, which accounts Apple's revenue is 8.80%, or $4.863billion. Fourth is wearable devices and home accessories, which accounts Apple's revenue is 8.67%, or $4.791billion. Fifth is iPad, which accounts Apple's revenue is 7.98%, or $4.409billion.

The iPhone's account for Apple's share of revenue decline 8.09% or $4.470billion, in 2019 from 2018. The main reasons are Qualcomm's patent dispute with Apple has caused iPhones in many regions to be removed. And the signal from iPhone is not good. And the iPhone's price still too high. Although the iPad and Mac's accounts of Apple's share of revenue are both rise, in 2019 from 2018. But their market shares are not as good as before. In fact, as the functions of mobile phone become more and more powerful, more and more people choose to buy mobile phone rather than iPad and Mac. But iPhone year-on-year increase in net sales reflects Apple's operating segments emphasis on developing mobile phone. But in 2020, 5G technology was born. Many mobile phone companies have produced mobile phones that can use 5G. But Apple company has not released 5G phones. We think this will seriously affect the sales of iPhone and market share. And it is worth mentioning that the services business and wearable devices and home accessories' share of Apple's revenue grew rapidly, in 2019 from 2018. The main reason is the GDP are increasing in the world, people become more and more rich, people pay more attention to appearance and image, and Apple this brand happens to be a symbol of identity. So, people buying Apple products began to change from hardware to jewelry and accessories.

Table 3.3: Global smartphone vendor shipments (Millions of units)

	Q1 2018	Change rate	Q1 2019
Samsung	78.2	-8.18%	71.8
Huawei	39.3	50.38%	59.1
Apple	52.5	-17.90%	43.1
Xiaomi	28.3	-2.83%	27.5
OPPO	24.1	5.39%	25.4
Others	123.3	-16.06%	103.5
Total	345.4	-4.34%	330.4

Source: StrategyAnalytics

Table 3.4: Global smartphone vendor market share (%)

	Q1 2018	Change rate	Q1 2019
Samsung	22.6%	-0.9%	21.7%
Huawei	11.4%	6.5%	17.9%
Apple	15.1%	-2.1%	13.0%
Xiaomi	8.2%	0.1%	8.3%
OPPO	7.0%	0.7%	7.7%
Others	35.7%	-4.4%	31.3%
Total	100.0%		100.0%

Source: StrategyAnalytics

From table 3.3 and 3.4, we can know that global smartphone shipments reached 330.4 million units in the first quarter of 2019, down 4.34% from 345.4 million units in the same period last year. At present, the top five mobile phone brands in the global mobile phone shipment list are: Samsung, Huawei, Apple, Xiaomi and OPPO. These five mobile phone brands account for 68.6% of the global market, accounting for nearly 70% of the total.

Samsung remains the world's dominant smartphone maker, but the biggest pressure comes from Huawei's bigger market share in China. At present, the gap between Huawei and Samsung is only 2.2%. In addition to its high-market advantage in China, Huawei is also influential in Western Europe and Africa. Apple's iPhone shipments accounted for 13.0% of the market in the first quarter, down 2.1% from 15.1% a year earlier. Apple's weaker-than-expected performance in the first quarter of this year was largely due to a loss of ground in China. This is due to the price of the iPhone is too expensive, plus the model is outdated, the phone chip is outdated, the camera function is outdated and so on. However, recently, apple has been active in China and India, where it has launched a discount campaign to replace the old with the new, which is expected to reverse the disadvantage and rebound in the next quarter.

3.1.3 Segment Information and Geographic Data

The Company reports segment information based on the “management” approach. The management approach designates the internal reporting used by management for making decisions and assessing performance as the source of the Company’s reportable segments.

Apple Inc. manages its business primarily on a geographic basis. The Company’s reportable segments consist of the Americas, Europe, Greater China, Japan and Rest of Asia-Pacific. Americas includes both North and South America. Europe includes European countries, as well as India, the Middle East and Africa. Greater China includes China, Hong Kong and Taiwan. Rest of Asia-Pacific includes Australia and those Asian countries not included in the Company’s other reportable segments.

Chart 3.1: Apple's geographic structure

	CEO				
America	Europe	Greater China	Asia-Pacific	Japan	Retail
North America	European countries	China	Australia	Japan	
South America	The Middle East	Hong Kong	Asia other countries		
	Africa	Taiwan			
	India				

Source: Apple's district management

Although the reportable segments provide similar hardware and software products and similar services, each one is managed separately to better align with the location of the Company's customers and distribution partners and the unique market dynamics of each geographic region. As of March 2020, apple has opened 510 retail stores in 25 countries and regions around the world. This structure reduces Apple's transportation costs. However, this does not mean that it's a pure geographical structure, because the retail sector is not a geographical area, so a market segment between the two areas may appear.

The Company evaluates the performance of its reportable segments based on net sales and operating income. Net sales for geographic segments are generally based on the location of customers and sales through the Company's retail stores located in those geographic locations. Operating income for each segment includes net sales to third parties, related cost of sales and operating expenses directly attributable to the segment. Advertising expenses are generally included in the geographic segment in which the expenditures are incurred. Operating income for each segment excludes other income and expense and certain expenses managed outside the reportable segments. Costs excluded from segment operating income include various corporate expenses such as

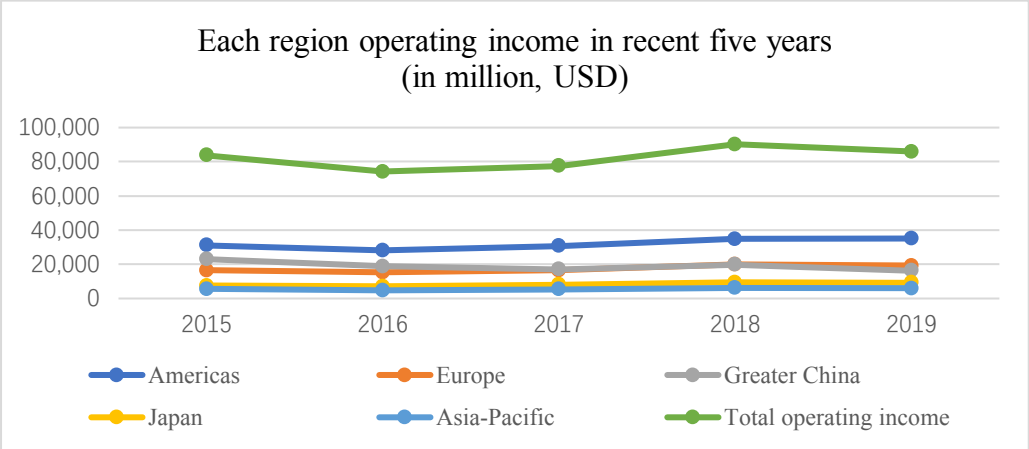
research and development, corporate marketing expenses, certain share-based compensation expenses, income taxes, various nonrecurring charges and other separately managed general and administrative costs. The Company does not include intercompany transfers between segments for management reporting purposes.

Table 3.5: Each region operating income and share in recent five years (in million, USD)

	2015	**2016**	**2017**	**2018**	**2019**
Americas	31,186 (37.19%)	28,172 (37.92%)	30,684 (39.53%)	34,864 (38.63%)	35,099 (40.84%)
Europe	16,527 (19.71%)	15,348 (20.66%)	16,514 (21.27%)	19,955 (22.11%)	19,195 (22.33%)
Greater China	23,002 (27.43%)	18,835 (25.35%)	17,032 (21.94%)	19,742 (21.88%)	16,232 (18.89%)
Japan	7,617 (9.08%)	7,165 (9.64%)	8,097 (10.43%)	9,500 (10.53%)	9,369 (10.90%)
Asia-Pacific	5,518 (6.58%)	4,781 (6.43%)	5,304 (6.83%)	6,181 (6.85%)	6,055 (7.04%)
Total operating income	83,850	74,301	77,631	90,242	85,950

Source: Financial report of Apple 2019 and Financial report of Apple 2017

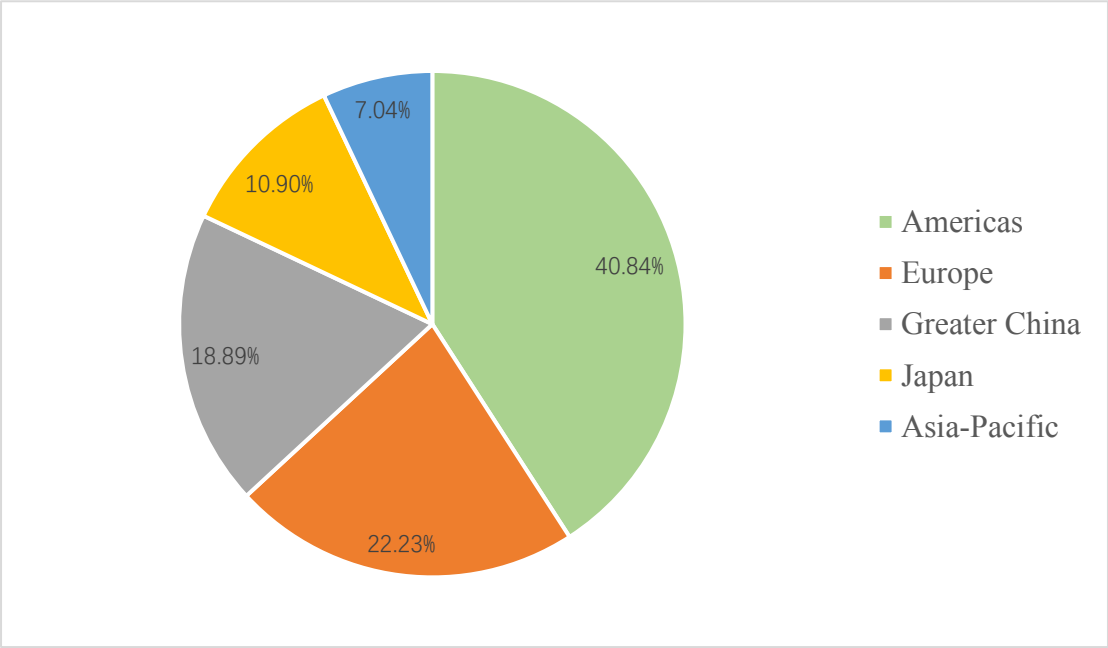
Figure 3.2: The trend of operating revenue in each region in recent five years



Source: Financial report of Apple 2019 and Financial report of Apple 2017

Combine table 3.5 and figure 3.2, we can see that total operating revenue fluctuates, but trend to $81,000million. The operating income of Americas remained the top, and although the operating income declined in 2016, it continued to rise from 2017 to 2019. And between 2015 and 2019 the overall share of revenues in the Americas has continued to rise. The operating income trend in Europe is very similar to those in the Americas, and the share of revenues in Europe has continued to rise. The operating income trends of Japan and Asia-Pacific region both are slow growth, but the shares of total revenues are increasing. But the operating income trend of Greater China is quite different, although it has picked up in 2018, the overall trend is downward. And the share of revenue has continued to down. We think the reasons are, first, there are many mobile phone companies on the rise in China. Such as Huawei, OPPO and Vivo. Second, The United States and China are in a trade war, tariffs are being increased, costs are going up, and prices are going up.

Figure 3.3: Portfolios of segments in 2019



Source: Financial report of Apple 2019

Figure 3.3 shows the portfolios of segments in 2019. In 2019, net sales in the U.S. market were $35.099 billion, accounting for 40.84% of total operating revenue. Net sales in the U.S. grew $235 million, or 0.67%, in 2019 from 2018. The main reason for the increase in net sales is that apple pays attention to music quality, which improves the users' experience of using iPhone, iPad and Mac. Apple also launched a new model of iPhoneX. The revenue of iPad and Mac both increased compared with the previous year. But the decline in iPhone sales somewhat dampened overall growth. In 2019, net sales in Europe were $19.195 billion, or 22.33% of total sales. Net sales in Europe fell $760 million, or 3.81%, in 2019 from 2018. The reason is almost the same as the American part. Net sales in Greater China were $16.232 billion, accounting for 18.89% of total sales. In 2019, net sales in Greater China fell $3.51 billion, or 17.78%, from a year earlier. The company's sales in Greater China fell particularly sharply in 2019 compared with the same period last year, the main reason is the rise of Chinese national mobile phone companies, slow product updates and expensive Apple products led to a sharp drop in Apple's competitiveness in China. Net sales in Japan and Asia-pacific were $9.369billion, or 10.90% and $6.055billion or 7.04% of total operating income.

Due to the population and the power of purchase are small, so it seems no changes with last year.

3.2 Common-size Analysis of Apple's Finances

In this part, the common-size analysis method introduced in chapter 2 will be used to analyze Apple's financial statements. Uniform weights and measures financial statements can be used to compare the operations of multiple companies at the same time. The comparison between Apple Inc. and other companies in the industry can better reflect the advantages and disadvantages of apple Inc.

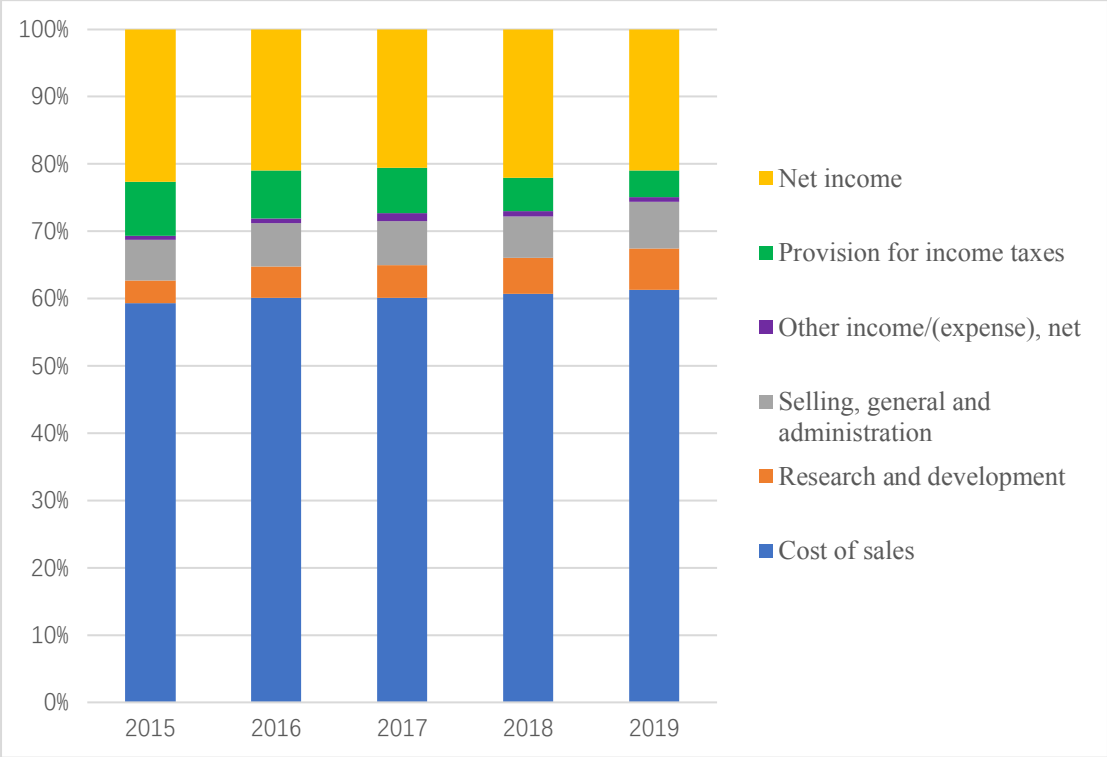
3.2.1 Vertical Common-size Analysis

Table 3.6: Vertical common-size analysis of income statement

	2015	2016	2017	2018	2019
Net sales	100%	100%	100%	100%	100%
Cost of sales	59.94%	60.92%	61.53%	61.66%	62.17%
Gross margin	40.06%	39.08%	38.47%	38.34%	37.82%
Research and development	3.45%	4.66%	5.05%	5.36%	6.23%
Selling, general and administration	6.13%	6.58%	6.66%	6.29%	7.01%
Total operating expenses	9.58%	11.24%	11.71%	11.65%	13.25%
Operating income	30.48%	27.84%	26.76%	26.69%	24.57%
Other income/(expense), net	0.55%	0.63%	1.20%	0.75%	0.69%
Income before provision for income taxes	31.03%	28.46%	27.96%	27.45%	25.27%
Provision for income taxes	8.18%	7.27%	6.87%	5.03%	4.03%
Net income	22.85%	21.19%	21.09%	22.41%	21.24%

Sources: Annex income statement

Figure 3.4: Vertical common-size analysis of income statement



Source: Table 3.5

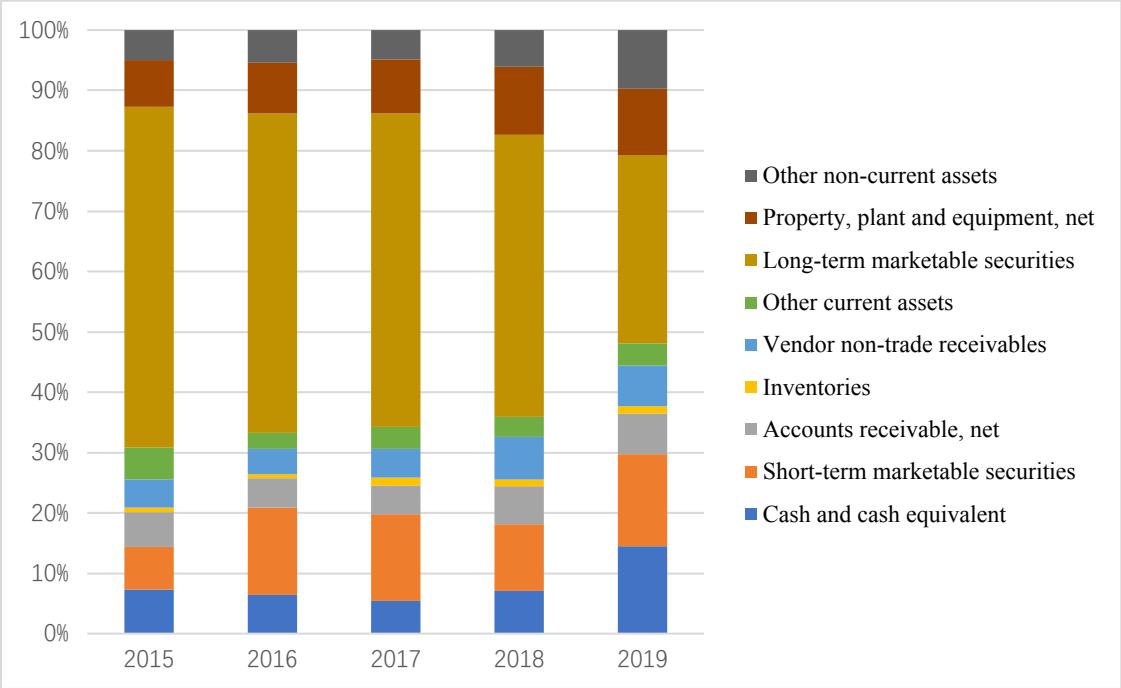
Table 3.6 and figure 3.4 are the vertical common-size of Apple's income statements. From table 3.6 and figure 3.4 we can know that, about 60% of the income in these 5 years is the cost of goods sold. From 2015 to 2019, the gross profit margin continued to decrease, which was caused by the improvement of the cost structure of new products, consumers' increasing pursuit of high-quality goods, and the increase of world labor cost. The gross margin in 2019 was 37.82%, down 0.52% from 2018, which has a lot to do with Apple's dispute with Qualcomm. From 2015 to 2019, the proportion of R&D spending is on the rise, and will be particularly significant in 2019, as other mobile phone companies in the industry have already produced 5G phones, while apple aims to produce in 2020. During these five years, the percentage of operating revenue decreased because of increased spending on operating expenses and advertising. From 2015 to 2019, the percentage of net revenue fluctuates, but is roughly stable at 22%.

Table 3.7: Vertical common-size statement of assets

	2015	**2016**	**2017**	**2018**	**2019**
Cash and cash equivalent	7.27%	6.37%	5.41%	7.09%	14.43%
Short-term marketable securities	7.05%	14.51%	14.36%	11.04%	15.28%
Accounts receivable, net	5.80%	4.90%	4.76%	6.34%	6.77%
Inventories	0.81%	0.66%	1.29%	1.08%	1.21%
Vendor non-trade receivables	4.65%	4.21%	4.74%	7.06%	6.76%
Other current assets	5.20%	2.57%	3.71%	3.30%	3.65%
Total current assets	30.78%	33.22%	34.28%	35.91%	48.10%
Long-term marketable securities	56.51%	52.98%	51.88%	46.70%	31.12%
Property, plant and equipment, net	7.74%	8.40%	9.00%	11.29%	11.04%
Other non-current assets	4.97%	5.40%	4.84%	6.09%	9.74%
Total non-current assets	69.22%	66.78%	65.72%	64.09%	51.90%
Total assets	100.00%	100.00%	100.00%	100.00%	100.00%

Source: Annex 1: Balance sheet

Figure 3.5: Vertical common-size analysis of assets



Source: Table 3.6

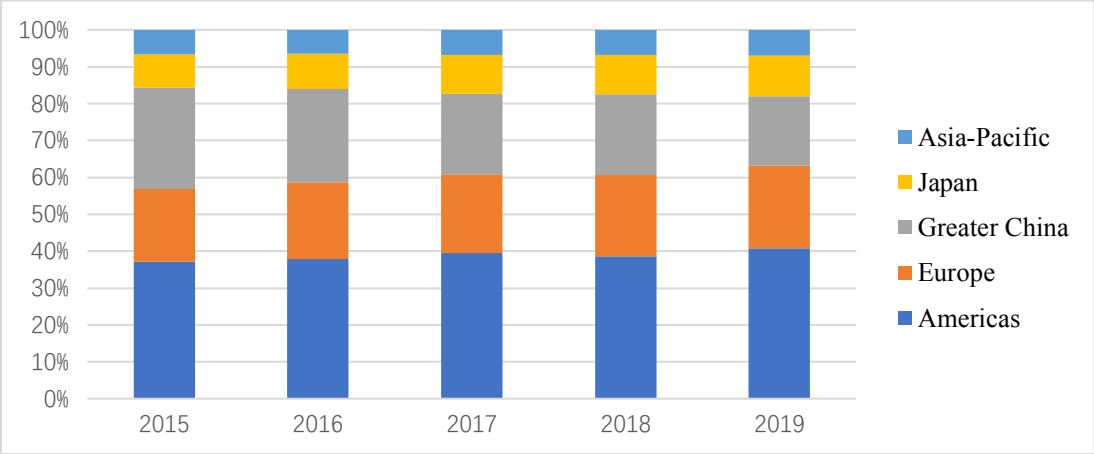
Table 3.7 and figure 3.5 are vertical common-size statements of Apple's assets. They show us that from 2015 to 2019, apple's current assets increased. The proportion of current assets rose from 30.78% in 2015 to 48.10% in 2019. In particular, the ratio of current assets grew by 12.19% between 2018 and 2019. The reason is that apple's portfolio of long-term securities fell 15.58% between 2018 and 2019. In 2018, Cook's decision to ban the release of apple product sales sent the stock tumbling, wiping 27% off its market value in just two months, during which time Apple Inc. sold many long-term securities. In fact, from 2015 to 2017, Apple's total assets increased, while from 2018 to 2019, apple's total assets decreased. In 2019, compared with 2017, Apple's total assets decreased by 9.81%. The ratio of net asset value, net plant and equipment value was stable in these five years.

Table 3.8: Vertical common-size statement of operating segments

	2015	2016	2017	2018	2019
Americas	37.19%	37.92%	39.53%	38.63%	40.84%
Europe	19.71%	20.66%	21.27%	22.11%	22.33%
Greater China	27.43%	25.35%	21.94%	21.88%	18.89%
Japan	9.08%	9.64%	10.43%	10.53%	10.90%
Asia-Pacific	6.58%	6.43%	6.83%	6.85%	7.04%
Total operating income	100%	100%	100%	100%	100%

Source: Financial report of Apple 2019 and Financial report of Apple 2017

Figure 3.6: Vertical common-size analysis of operating segments



Source: Table 3.8

Table 3.8 and figure 3.6 are vertical common-size analysis of Apple's operating segments. They show us that Americas percentage was increasing from 37.19% in 2015 to 40.84% in 2019. Although the sales decreased from 2017 to 2018, it was basically stable at 39% of the total operating income. Sales in Europe continued to rise from 2015 to 2019, up 2.62%. Sales in Greater China continued to fall from 2015 to 2019, down 8.54%. China is a huge economy in Asia, but in recent years it has spawned a number of national mobile phone companies that have had a huge impact on Apple's market share. Sales in Japan and the Asia-Pacific region have remained stable.

3.2.2 Horizontal Common-size Analysis

In this part, we will use horizontal common-size analysis Apple's finances. It can show the trends of Apple Inc. development.

Table 3.9: Horizontal common-size statement of income statement

	2015	2016	2017	2018	2019
Net sales	100%	92.27%	106.30%	115.86%	97.96%
Cost of sales	100%	93.78%	107.36%	116.10%	98.78%
Gross margin	100%	90.00%	104.66%	115.48%	96.62%
Operating expenses					
Research and development	100%	124.52%	115.29%	122.93%	113.92%
Selling, general and administration	100%	99.06%	107.52%	109.46%	109.22%
Total operating expenses	100%	108.23%	110.74%	115.27%	111.38%
Income					
Operating income	100%	84.27%	102.20%	115.57%	90.17%
Other income/(expense), net	100%	104.90%	203.64%	73.04%	90.12%
Income before provision for income taxes	100%	84.63%	104.43%	113.75%	90.17%
Provision for income taxes	100%	82.03%	100.34%	84.97%	78.38%
Net income	100%	85.57%	105.83%	123.12%	92.82%

Source: Annex 2: Income Statement

Table 3.9 shows that from 2015 to 2019, net income such as operating expenses in the income statement shows an upward trend. The sharp increase in operating expenses resulted in a drop-in net profit. It is worth mentioning that in the past five years, Apple's R&D costs continue to rise, which is related to the competitive pressure in the industry. From 2015 to 2019, Apple's operating revenue grew slowly, with the latter declining by 9.83% compared with the previous year. Overall, apple's net profit was almost unchanged between 2015 and 2019.

Table 3.10: Horizontal common-size statement of assets

	2015	2016	2017	2018	2019
Current assets					
Cash and cash equivalent	100%	96.99%	99.05%	127.72%	188.49%
Short-term marketable securities	100%	227.87%	115.47%	74.94%	128.04%
Accounts receivable, net	100%	93.50%	113.46%	129.72%	98.88%
Inventories	100%	90.76%	227.72%	81.48%	103.79%
Vendor non-trade receivables	100%	100.38%	131.41%	145.00%	88.64%
Other current assets	100%	54.91%	168.25%	86.73%	102.19%
Total current assets	100%	119.57%	120.38%	102.09%	123.97%
Non-current assets					
Long-term marketable securities	100%	103.88%	114.25%	87.72%	61.68%
Property, plant and equipment, net	100%	120.20%	125.08%	122.26%	90.49%
Other non-current assets	100%	120.41%	104.60%	122.59%	148.00%
Total non-current assets	100%	106.89%	114.83%	95.02%	74.96%
Total assets	100%	110.79%	116.67%	97.44%	92.56%

Source: Annex 1: Balance Sheet

From table 3.10, we know that cash and cash equivalents declined in 2016 and 2017. In 2018, both short-term and long-term securities fell sharply, as Cook's policy of refusing to disclose annual sales sent Apple's stock plummeting, sending its market value below $800 billion for the first time, back to the level of 2017. But from 2015 to 2019, Apple's liquid assets continued to rise. From 2015 to 2017, Apple's total assets showed an upward trend, but from 2018 to 2019, Apple's total assets showed a downward trend due to the factors such as stock crash and industry competition.

Table 3.11: Horizontal common-size statement of liabilities and equity

	2015	2016	2017	2018	2019
Current liabilities					
Accounts payable	100%	105.08%	131.52%	113.94%	82.73%
Other current liabilities	100%	87.47%	116.87%	129.46%	113.18%
Deferred revenue	100%	90.38%	93.42%	79.04%	92.56%
Commercial paper	100%	95.36%	147.77%	99.89%	49.98%
Short-term debt	100%	140.00%	185.60%	135.22%	116.80%
Total current liabilities	100%	98.01%	127.60%	114.99%	91.19%
Non-current liabilities					
Long-term debt	100%	141.44%	128.88%	96.43%	97.94%
Other non-current liabilities	100%	105.27%	110.89%	113.09%	103.25%
Total non-current liabilities	100%	126.61%	122.74%	101.56%	99.76%
Total liabilities	100%	113.13%	124.73%	107.17%	95.92%
Shareholders' equity					
Common stock	100%	113.99%	114.77%	112.08%	112.37%
Retained earnings	100%	104.42%	102.04%	71.60%	65.20%
Accumulated other comprehensive income/(loss)	100%	183.77%	-23.66%	-2302.67%	16.91%
Total shareholders' equity	100%	107.45%	104.52%	79.93%	84.45%
Total liabilities and shareholders' equity	100%	110.79%	116.67%	97.44%	92.56%

Source: Annex 1: Balance Sheet

From table 3.11, we know that total current liabilities declined in 2019 due to a decline in commercial paper and deferred revenue. The total amount of common stock

and shareholders' equity increased continuously during these five years. Apple's total debt fell in 2019 due to a decline in long-term debt and commercial paper. From 2015 to 2019, apple's common stock continued to rise. The company will pay dividends of $3, $2.72 and $2.40 per share in 2019, 2018 and 2017, respectively.

Table 3.12: Horizontal common-size statement of operating segments

	2015	**2016**	**2017**	**2018**	**2019**
Americas	100%	90.34%	108.92%	113.62%	100.67%
Europe	100%	92.87%	107.60%	120.84%	96.19%
Greater China	100%	81.88%	90.43%	115.91%	82.22%
Japan	100%	94.07%	113.01%	117.33%	98.62%
Asia-Pacific	100%	86.64%	110.94%	116.53%	97.96%
Total operating income	100%	88.61%	104.48%	116.24%	95.24%

Source: Annex 4: Operating Segments and Table 3.5

As can be seen from table 3.12, total net sales are decreasing in 2019 due to a decrease in sales in all regions except the Americas compared to the previous year. In 2018, net sales in the U.S. grew 13.62% from 2017. The reasons were driven by rising iPhone revenues, strong demand for the iPad, continued demand for the Mac desktop and portable systems, and higher sales of third-party digital content and applications from the iTunes store. But in 2019, sales in Europe and Greater China fell sharply from a year earlier, as Apple's chip dispute with Qualcomm and policies in China and parts of Europe banning Apple from targeting Qualcomm patents led to the removal of a large number of Apple products from shelves. Sales in Japan and Asia-Pacific were flat due to their small size.

4 Financial Analysis and Risk Evaluation of the Company

Financial ratio analysis, also known as financial index analysis, is to calculate the ratio according to the relationship between two or more items in the financial statement of the same period, in order to evaluate the financial status and operating results of the enterprise. This correlation ratio analysis is commonly referred to as "ratio analysis". Financial ratios can be used to evaluate the change in the return of an investment from year to year, or to compare different firms in a particular industry at a certain point in time. Financial ratio analysis can eliminate the effect of size and compare the returns and risks of different companies, thus helping investors and creditors to make rational decisions.

In this chapter, we will use financial ratio analysis to more intuitively assess the change in Apple Inc. financial position between 2015 and 2019, based on the data and charts in Apple's annual report and our own calculations. We will use the financial ratio analysis to reflect the company's operating status in four main areas: activity, liquidity, solvency and profitability ratio. All data are from Apple's 2015-2019 financial reports.

4.1 Activity Ratios Analysis

Table 4.1 shows the turnover ratio of apple from 2015 to 2019. Inventory turnover is calculated according to formula (2.5). The turnover rate of current assets is calculated according to formula (2.6). Total asset turnover is calculated according to formula (2.7). Account receivable turnover rate is calculated according to formula (2.8). Working capital turnover is calculated according to formula (2.9).

Table 4.1: Turnover ratios (in million, USD)

	2015	**2016**	**2017**	**2018**	**2019**
Cost of sales	140,089	131,376	141,048	163,756	161,756
Net sales	233,715	215,639	229,234	265,595	260,174
Inventories	2,349	2,132	4,855	3,956	4,106
Average inventories		2,240.5	3,493.5	4,405.5	4,031
Accounts receivable, net	16,849	15,754	17,874	23,186	22,926
Average receivables		16,301.5	16,814	20,530	23,056
Total assets	290,345	321,686	375,319	365,725	338,516
Average total assets		306,015.5	348,502.5	370,522	352,120.5
Total current assets	89,378	106,869	128,645	131,339	162,819
Average current assets		98,123.5	117,757	129,992	147,079
Total current liabilities	80,610	79,006	100,814	115,929	105,718
Working capital	8,768	27,863	27,831	15,410	57,101
Average working capital		18,315.5	27,847	21,620.5	36,255.5
Inventory turnover		**58.64**	**40.37**	**37.17**	**40.13**
Current assets turnover		**2.20**	**1.95**	**2.04**	**1.77**
Total assets turnover		**0.70**	**0.66**	**0.72**	**0.74**
Receivables turnover		**13.23**	**13.63**	**12.94**	**11.28**
Working capital turnover		**11.77**	**8.23**	**12.28**	**7.18**

Table 4.1 shows us the turnover ratios of Apple Inc.

High inventory turnover means high inventory liquidity and high efficiency in converting inventory into cash and accounts receivable. Improving inventory turnover improves a business's ability to convert inventory into cash and accounts receivable. Lower inventory turnover means lower ability to convert inventory into cash and accounts receivable. Inventory turnover was 40.13 in 2019, up 7.96 percent from 2018. However, Apple's sales profit in 2019 is not good, because although the cost of sales in 2019 is lower than that in 2018, the inventory is 1.04 times of that in 2018. From 2016 to 2018, Apple's inventory turnover rate continued to decline, and the cost of sales continued to increase, which seriously affected Apple's profit and showed that Apple's competitiveness in the industry declined.

High current asset turnover indicates the company's ability to maximize sales with minimal current asset investment. The higher the current asset turnover ratio, the better. Current asset turnover declined 11.4% in 2017 from a year earlier, suggesting that Apple's investment in current assets did not perform well in 2017. The current asset turnover ratio declined by 13.2% in 2019 compared with the same period in 2018, indicating that Apple's stock suffered a heavy hit in 2018 and has not recovered in 2019.

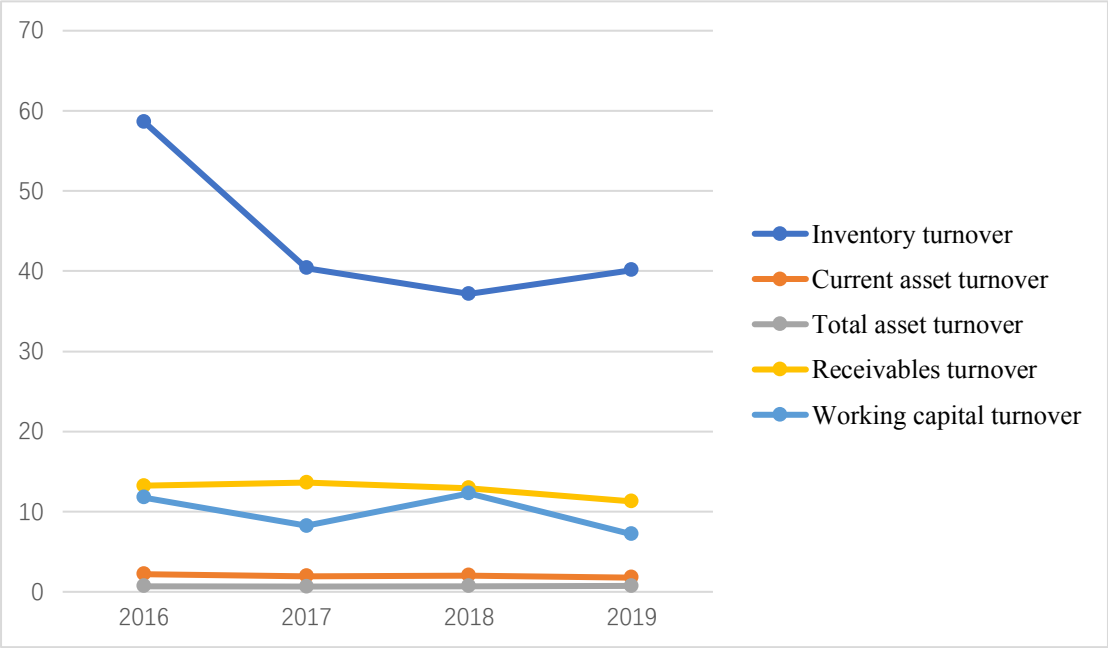
Low-margin companies tend to have higher total asset turnover, while high-margin companies have lower total asset turnover. From 2016 to 2019, the total asset turnover ratio is less than one. It means there's no turnover of total assets in the 5 years.

The higher the receivables turnover rate, the better, because it means that receivables are collected quickly, and bad debts are lost less. Turnover was on the rise from 2016 to 2017 but declined in 2018. The receivables turnover ratio in 2019 is 11.28, down 12.8% from 2018, which means that the receivables loss in 2019 is about 12.8%.

High working capital turnover indicates that management is very effective in using the company's short-term assets and liabilities to support sales (i.e., for every dollar of working capital used, a higher amount of sales is generated). Conversely, a low ratio may indicate that a business is investing too much in receivables and inventory to support its sales, which can lead to too much bad debt or outdated inventory. Working capital turnover was on a downward trend from 2016 to 2017. It was 8.23 in 2017,

down 30.1 percent from the previous year. Working capital turnover was 12.28 in 2018, but the working capital turnover in 2109 was only 7.18, down 41.5% from 2018. This is also in line with the trend of declining receivables turnover in 2019, indicating that Apple invested too much receivables in 2019.

Figure 4.1: Turnover ratios trends



Source: Table 4.1

As can be seen from figure 4.1, inventory turnover continued to decrease, but increased in 2019. It reflects the popularity of Apple's products are not good in 2017 and 2018. From 2016 to 2017, the receivables turnover rate showed an upward trend, but continued to decline from 2017 to 2019. Total asset turnover and current asset turnover are stable. The working capital turnover declined from 2016 to 2017; and raised from 2017 to 2018; and declined again from 2018 to 2019; it reached the highest value in 2018. Inventory turnover is higher than another turnover. Accounts receivable turnover is higher than current asset turnover, total asset turnover and working capital turnover.

Table 4.2 shows operating cycle and its components of Apple Inc. from 2015 to 2019. And number of days of inventory is calculated according to formula (2.10). Number of days of receivables is calculated according to formula (2.11). Number of days of payables is calculated according to formula (2.12). Operating cycle is calculated according to formula (2.14)

Table 4.2: Operating cycle and its components (in million, USD)

	2015	**2016**	**2017**	**2018**	**2019**
Inventories	2,349	2,132	4,855	3,956	4,106
Cost of sales	140,089	131,376	141,048	163,756	161,756
Average day's cost of sales	383.81	359.93	386.43	448.65	443.17
Account receivable, net	16,849	15,754	17,874	23,186	22,926
Net sales	233,715	215,639	229,234	265,595	260,174
Average day's revenue	640.32	590.79	628.04	727.66	712.81
Account payable	35,490	37,294	49,049	55,888	46,236
Purchase		131,159	143,771	162,857	161,906
Average day's purchase		359.34	393.89	446.18	443.58
Number of days of inventory	**6.12**	**5.92**	**12.56**	**8.82**	**9.27**
Number of days of receivables	**26.31**	**26.67**	**28.46**	**31.86**	**32.16**
Number of days of payables		**103.78**	**124.52**	**125.26**	**104.23**
Operating cycle	**32.43**	**32.59**	**41.02**	**40.68**	**41.43**

Source: Annex 1: Balance Sheet and Annex 2: Income Statement

Low number of days of inventory means better sales condition. In 2017, there were 12.56 days of inventory, which means it would take Apple 12.56 days to sell inventory. It was also the largest number of days of inventory in the last five years, which means Apple did not sell very well in 2017, as can be seen from the net income. The number

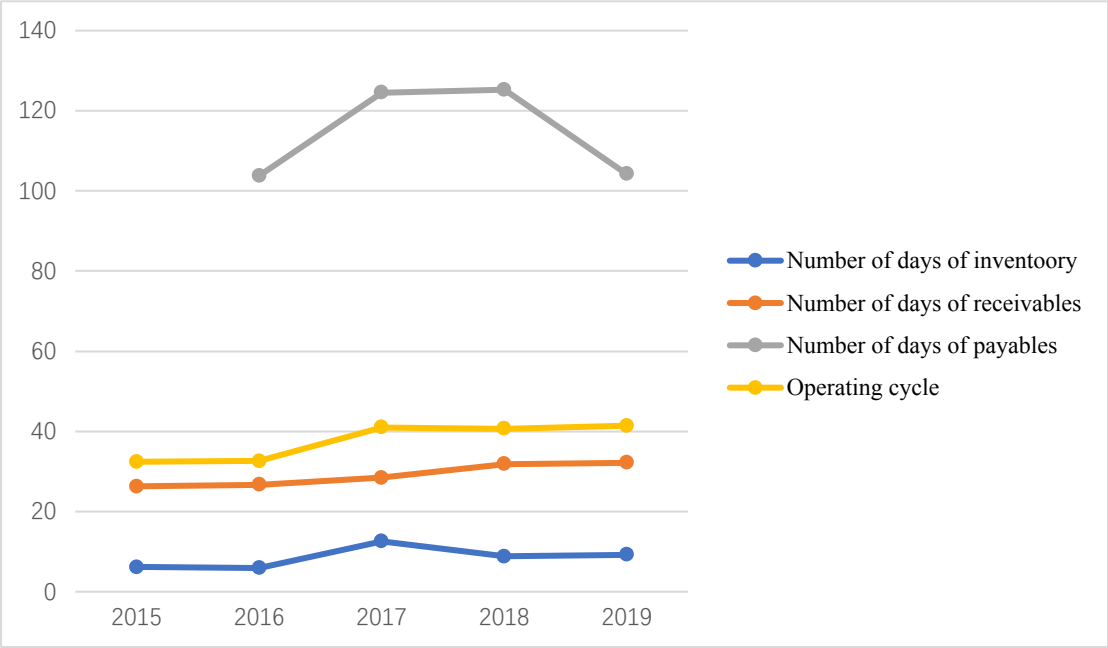
of inventory days in 2019 was 9.27, up 0.45 days from 2018, which means Apple's sales in 2019 are not as strong as in 2018.

A lower number of days represents a better ability to collect accounts receivable. In 2015, there were 26.31 days of accounts receivable, which means it took Apple about 27 days to collect all its accounts receivable. The number of days receivable in 2019 was 32.16, an increase of about 1 day from 2018.

The higher number of days due means the company is better able to use its suppliers' money. The number of days due in 2018 is 125.26, which means Apple can use its outstanding payments in about 126 days. The number of days due in 2019 is 104.23, about 20 days less than in 2018. Because 2019 accounts payable decreased by $9.65 billion, or 17.3%, from 2018, and average daily purchases decreased by $2.6 million, or 0.58%, from 2018.

Low operating cycle means it takes less time for a company to convert an investment in its inventory into liquid cash by collecting accounts receivable. The 2015 operating cycle was 32.43, the smallest in nearly five years, meaning it took Apple 33 days to convert its cash investment from inventory back into cash through accounts receivable. The operating cycle in 2019 is 41.43 days, about one day more than in 2018. Because inventory days and accounts receivable days increased in 2019 compared to 2010.

Figure 4.2: The operating cycle and its components trend



Source: Table 4.2

Figure 4.2 shows the operating cycles and its components trend. As we can see, number of days of inventory is floating and it is rising from 2018 to 2019. And it reached the highest point in 2017, it means the sales of days is not good in 2017. Number of days of receivables and operating cycle continue to rise from 2015 to 2019. But starting in 2018, they have not risen much. It reflects Apple company has less money to invest in its current marketing than it used to. Number of days of payables float is larger, with 2019 based on the same level as 2016.

4.2 Liquidity Ratios Analysis

Table 4.3 shows liquidity ratios of Apple from 2015 to 2019. And the current ratio is calculated according to formula (2.15), the quick ratio is calculated according to formula (2.16), the cash flow ratio is calculated according to formula (2.17).

Table 4.3: Liquidity ratios (in million, USD)

	2015	**2016**	**2017**	**2018**	**2019**
Total current assets	89,378	106,869	128,645	131,339	162,819
Total current liabilities	80,610	79,006	100,814	115,929	105,718
Cash and cash equivalents	21,120	20,484	20,289	25,913	48,844
Short-term marketable securities	20,481	46,671	53,892	40,388	51,713
Account receivable, net	16,849	15,754	17,874	23,186	22,926
Current ratio	**110.88%**	**135.27%**	**127.61%**	**113.29%**	**154.01%**
Quick ratio	**72.51%**	**104.94%**	**91.31%**	**77.19%**	**116.80%**
Cash flow ratio	**51.61%**	**85.00%**	**73.58%**	**57.19%**	**95.12%**

Source: Annex 1: Balance Sheet

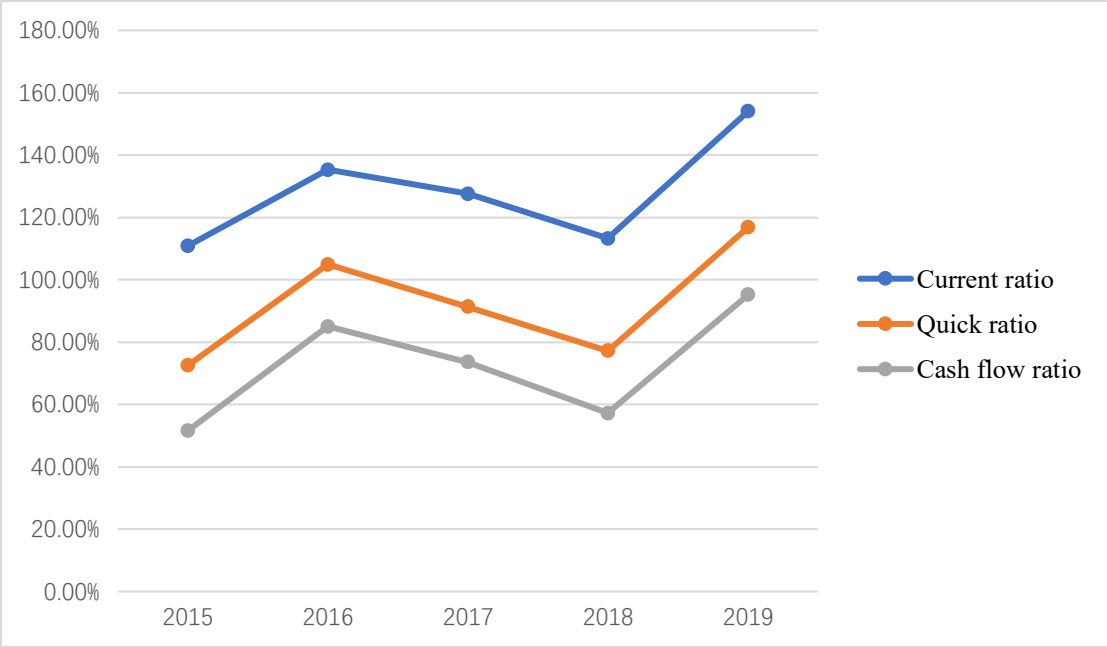
A high current ratio means a company is better able to repay its current liabilities with its current assets. The liquidity ratio reached its maximum in 2019, up 41.72% from 2018. Current liabilities in 2019 decreased by $10.21 billion, or 8.80%, compared with 2018, and current assets increased by $31.48 billion, or 23.97%, compared with 2018. Therefore, the reason for the high liquidity ratio is the sharp rise in current assets.

A high quick ratio means that the company has more measures to repay its current liabilities. The higher the ratio, the greater the financial security of the company in the short term. The general rule of thumb is that a company with a quick ratio of more than 1.0 has enough capacity to service its short-term debt. In the last five years, only in 2019 and 2016 has the ratio been greater than 1.0. The ratio peaked in 2019 but

fluctuated widely in other years. That's because current liabilities are lower in 2019 than they were in 2018, but both cash and short-term investments are higher than they were in 2018. The quick ratio was 116.80% in 2019, up 39.61% from 2018. That's because total cash and short-term securities and receivables increased $33.996 billion, or 38.01%, from 2018.

Cash flow ratio determines the number of times the current liabilities can be paid off out of cash flow. The higher ratio is better. The ratio peaked in 2019, up 37.93% from 2018.

Figure 4.3: Liquidity ratios trend



Source: Table 4.3

Figure 4.3 shows the liquidity ratios trend. As we can see, the trends are roughly the same, with both trending down from 2016 to 2018 and up in 2018 to 2019. That's a good trend for Apple Inc., which has more cash flow to pay off short-term debt.

4.3 Solvency Ratios Analysis

Table 4.4 shows the solvency ratios of Apple from 2015 to 2019. And debt-to-asset ratio is calculated according to formula (2.18). Long-term debt-to-asset ratio is calculated according to formula (2.19). Debt-to-equity ratio is calculated according to formula (2.20). Financial leverage is calculated according to formula (2.21). Cash flow-to-debt ratio is calculated according to formula (2.22).

Table 4.4: Solvency ratios (in million, USD)

	2015	**2016**	**2017**	**2018**	**2019**
Total assets	290,345	321,686	375,319	365,725	338,516
Total liabilities	170,990	193,437	241,272	258,578	248,028
Long-term debt	53,329	75,427	97,207	93,735	91,807
Total shareholder's equity	119,355	128,249	134,047	107,147	90,488
Cash generated by operating activities	81,266	65,824	64,225	77,434	69,391
Debt-to-asset ratio	**58.89%**	**60.13%**	**64.28%**	**70.70%**	**73.27%**
Long-term debt-to-asset ratio	**18.37%**	**23.45%**	**25.90%**	**25.63%**	**27.12%**
Debt-to equity ratio	**143.26%**	**150.83%**	**179.99%**	**241.33%**	**274.10%**
Financial leverage	**2.43**	**2.51**	**2.80**	**3.41**	**3.74**
Cash flow-to-debt ratio	**47.53%**	**34.03%**	**26.62%**	**29.95%**	**27.98%**

Source: Annex 1: Balance Sheet and Annex 3: Cash Flow Statement

The debt-to-asset ratio tells us the percentage of a company's total assets funded by its creditors. The high debt-to-asset ratio means that a large part of the company's assets is financed by debt, and the excessive ratio reflects the risk that the company may not be able to repay its debts. In the past five years, the ratio of liabilities to assets keeps increasing. In 2019, the ratio of liabilities to assets reaches 73.7%, which is the highest

from 2015 to 2019. Although the total liabilities of Apple in 2019 decreased by 4.08% compared with the previous year, the total assets of Apple in 2019 decreased by 7.44% compared with the previous year.

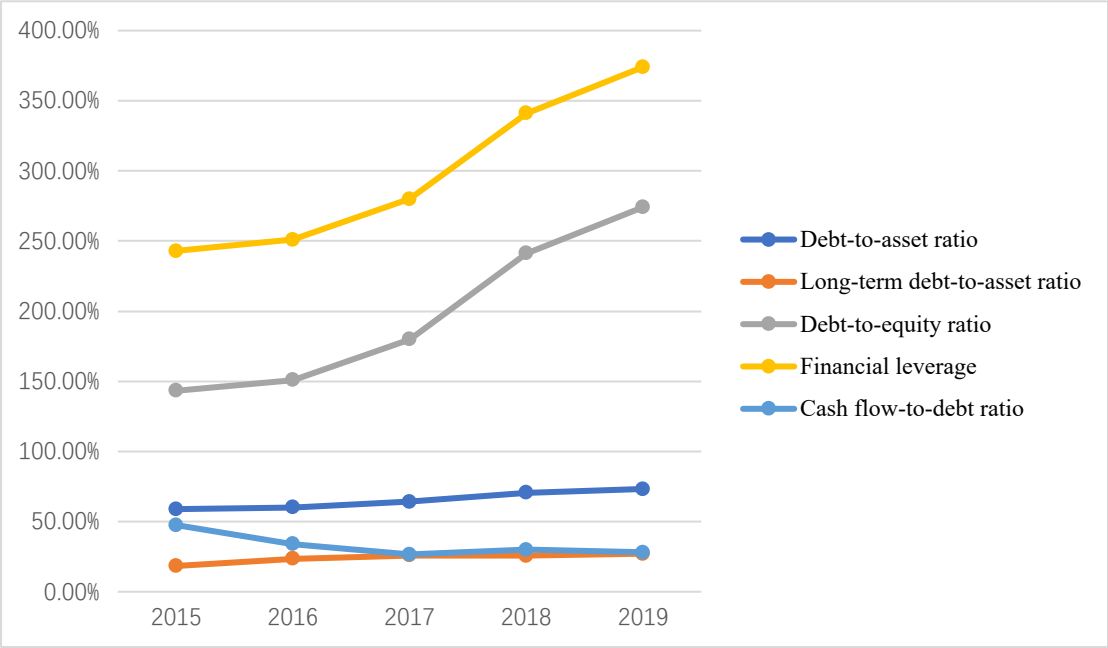
A high long-term debt-to-asset ratio indicates that a significant portion of a company's investment in operating activities is invested with long-term borrowings. The asset-liability ratio was 27.12% in 2019, up 1.49% from 2008. But the long-term debt-to-asset ratio between 2015 and 2019 is stable, at around 25%.

Since the debt-to-equity ratio measures a company's debt relative to its net asset value, it is most commonly used as a measure of how much debt a company takes on as a way to leverage its assets. High debt-to-equity ratios are often associated with high risk, which means that companies have been actively financing their growth through debt. From 2015 to 2019, the rate continued to rise. The debt-to-equity ratio in 2019 was 274.10%, up 33.77% from 2018 and 130.84% from 2015. That's not good news for Apple Inc. A high rate in 2019 means the cost of financing with debt is too high, causing the stock to fall.

Leverage is the use of debt to buy more assets and leverage to increase return on equity. However, excessive financial leverage increases the risk of bankruptcy, as repaying debts becomes more difficult. The financial leverage ratio is 3.74 in 2019, up 33% from 2018. That means Apple will have to pay more interest on its debt in 2019, which will lower earnings per share for Apple's shareholders.

A higher ratio of cash flow to debt means the company has less time to repay all its debt with cash flow. From 2015 to 2019, the ratio of cash flow to debt fluctuates greatly. In 2015, the figure was 47.53 percent, the highest in five years. In 2019, the ratio was 27.98 percent, down 1.97 percent from 2018 and 19.55 percent from 2015.

Figure 4.4: Solvency ratios trend



Source: Table 4.4

Figure 4.4 shows us the solvency ratios trend. From this, we can know that from 2015 to 2019, the trend of Apple's debt-to-asset ratio and long-term debt-to-asset ratio is very similar. In general, they both have an upward trend. However, it is worth mentioning that the long-term debt ratio has declined in 2018, which may be related to the stock crash of Apple in 2018. According to the theory, the debt-to-asset ratio and the trend of total debt should be similar. The reason why Apple Inc. has the lowest debt-to-asset ratio in 2015 is that, according to the statistics of Apple Inc., from 2010 to 2019, Apple retail stores expanded rapidly in the world, with the number of stores increasing from 317 to 510, an increase of 37.8%. In the third chapter, we analyzed the geographical segmentation of Apple company and found that the global sales of Apple products in 2015 were generally better than those in 2016 and 2017. The store expansion led to increased sales, but the company needed a lot of capital to expand, which is why it had the lowest debt-to-asset ratio in 2015.

And we can know that, the cash flow-to-debt declined from 2015 to 2017; it rose in 2018 and fell again in 2019. In the chapter 2, we explain that the cash flow-to-debt ratio means whether a company can quickly use the cash generated by its operating activities

to repay its debts. The higher the ratio, the shorter the time, the smaller the risk. From 2015 to 2019, apple has the least risk in 2015 and the highest risk in 2017.

We can see that from 2015 to 2019, Apple's debt-to-equity ratio and debt-to-asset ratio both rose, but its debt-to-equity ratio grew more significantly. From 2017 to 2018 in particular, the growth trend is very clear. The reason why the debt-to-equity ratio reached the highest value in 2019 is that the total debt kept rising, while the shareholder’s equity declined sharply from 2017 to 2019. At the same time, we think it is related to Apple's global expansion and its sales are not as good. As we mentioned in chapter 2, high equity gearing implies high returns, but also high risks. If the company's debt-to-equity ratio is less than 1, it's good for the company. However, from 2015 to 2019, under the normal operation of Apple Inc., the debt-to-equity ratio is always higher than 1, which means that Apple Inc. 's long-term financial situation is not optimistic and needs to be solved.

In chapter 2, we explain that there are two definitions of financial leverage, one is to enable a company to expand rapidly, the other is to bring more risks to the company. From 2015 to 2019, the financial leverage of Apple Inc. has risen rapidly, which means that Apple Inc. is expanding rapidly in the world. However, the excessive financial leverage brings excessive risks and shareholders may give up investment. This is not a healthy development in the long run, and hopefully Apple will address this in the future.

4.4 Profitability Ratios Analysis

The table 4.5 shows profitability ratios of Apple from 2015 to 2019. Gross profit margin is calculated according to formula (2.23). Operating profit margin is calculated according to formula (2.24). Net profit margin is calculated according to formula (2.25). Pretax profit margin is calculated according to formula (2.26). Operating return asset is calculated according to formula (2.27). Return on asset is calculated according to formula (2.28). Return on equity is calculated according to formula (2.29).

Table 4.5: Profitability ratios (in million, USD)

	2015	2016	2017	2018	2019
Gross margin	93,626	84,263	88,186	101,839	98,392
Operating income	71,230	60,024	61,344	70,898	63,930
Net income	53,394	45,687	48,351	59,531	55,256
Income before provision for income taxes	72,515	61,372	64,089	72,903	65,737
Net sales	233,715	215,639	229,234	265,595	260,174
Gross profit margin	**40.06%**	**39.08%**	**38.47%**	**38.34%**	**37.82%**
Operating profit margin	**30.48%**	**27.84%**	**26.76%**	**26.69%**	**24.57%**
Net profit margin	**22.85%**	**21.19%**	**21.09%**	**22.41%**	**21.24%**
Pretax profit margin	**31.03%**	**28.46%**	**27.96%**	**27.45%**	**25.27%**

Source: Annex 2: Income Statement

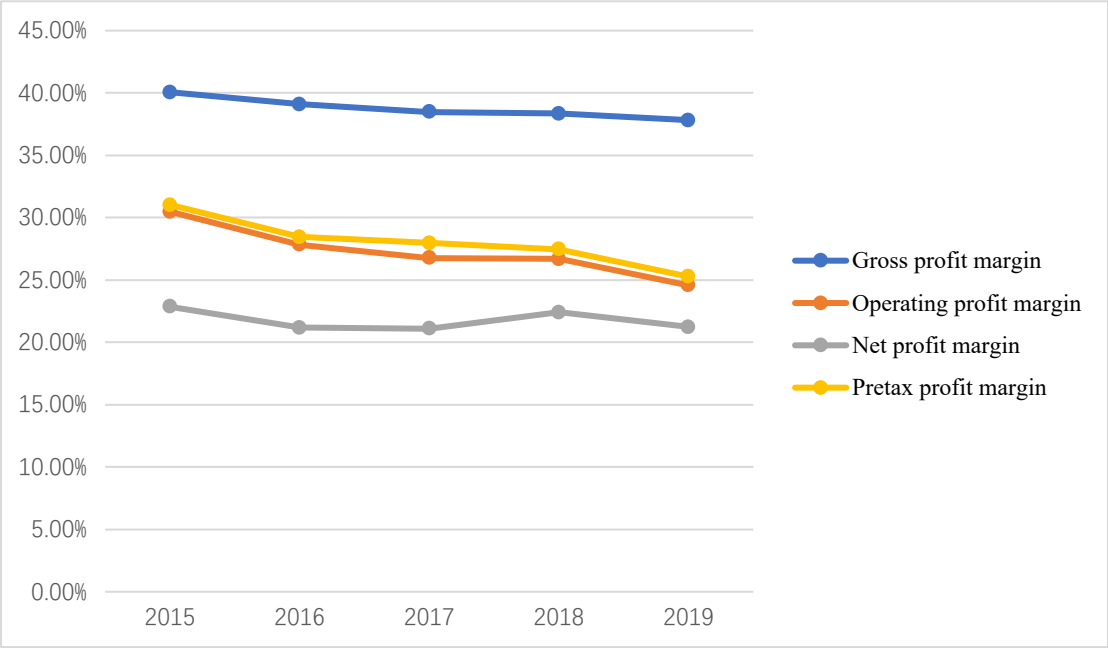
In generally, more efficient companies tend to have higher profit margins. The gross margin continued to decline from 2015 to 2019, with a year-on-year decline of 0.52% in 2019 and a year-on-year decline of 2.24% in 2015. That means Apple is losing sales.

Higher operating margins mean companies take less financial risk. However, from 2015 to 2019, Apple's operating margin continued to decline, down 2.12% from 2018 and 5.91% from 2015. That means Apple is increasingly risky in business.

Net profit margins are closely watched by shareholders because they show how well companies are converting revenues into profits that can be used by shareholders. From 2015 to 2019, Apple's net profit margin was stable, about 21.5%.

Pretax profit margin represents the operating efficiency of a company. Apple's pretax profit margin continued to decline from 2015 to 2019, down 2.18% from 2018 and 5.76% from 2015. This shows that Apple's cost of sales varies greatly, and its operating efficiency is not high.

Figure 4.5: Profitability ratios trend



Source: Table 4.5

Figure 4.5 shows us the profitability ratios trend. We can see that from 2015 to 2019, Apple's operating profit margin, gross profit margin and pretax profit margin showed a downward trend. The decline in operating margins was due to the fact that the change in total revenue was more pronounced than the change in operating revenue, and overall, both were on a downward trend. The downward trend in Apple's operating margins, gross margins and pretax margins suggests that the company's bottom line is declining. From the relationship between gross profit and total revenue or from the income statement, we can know that Apple's operating costs have been rising in the past five years. We believe this is the main reason for the decline in operating margins.

As we mentioned in chapter 2, the operating margin is the amount of profit a company makes on each dollar of sales before interest and taxes are paid. The higher the profit, the more efficient the company is. Apple's operating margin fell 5.91% from 2015 to 2019, according to the data. This suggests that Apple is taking increasing financial risks.

From 2015 to 2017, Apple's net profit margin declined, rose from 2017 to 2018, and fell again from 2018 to 2019. According to the formula of net profit, we can find that

this is caused by the change of total revenue greater than the change of net profit. Although there was a maximum net profit in 2018, there was also a maximum total revenue in the same year.

In chapter 2 we mentioned that the net profit margin represents the success of the company's sales. To increase profitability, companies can reduce operating costs or reduce expenses. Between 2015 and 2019, 2015 had the highest net profit margin and 2017 the worst. This means that the company's profitability was the best in 2015 and the worst in 2017. If Apple can't effectively control or reduce the cost of sales and expenses, the net profit margin may continue to decline.

Table 4.6: Compare with Apple, Huawei, SONY (in 2018 and 2019)

	Apple		Huawei		SONY	
	2018	2019	2018	2019	2018	2019
Gross profit margin	38.34%	37.82%	38.57%	37.57%	39.28%	40.56%
Operating profit margin	26.69%	24.57%	10.16%	9.06%	8.60%	10.32%
Net profit margin	22.41%	21.24%	8.23%	7.30%	5.74%	10.57%

Source: Annual report of Apple from 2018 to 2019. Annual report of Huawei from 2018 to 2019. Annual report of SONY from 2018 to 2019.

From table 4.6, we can know that Apple and Huawei's gross profit margin, operating profit margin and net profit margin is all decreasing from 2018 to 2019. But SONY is doing the opposite.

Compare Apple, Huawei and SONY in 2019, we can know that SONY's gross profit margin is the highest one of all. It means SONY has low cost of sales. And Apple's operating profit margin and net profit margin are both the highest of all companies. It reflects Apple has highest efficiency of business. Huawei as a new company needs to improve operating income.

Table 4.7: Return on asset and return on equity ratios (in million, USD)

	2015	2016	2017	2018	2019
Operating income	71,230	60,024	61,344	70,898	63,930
Total assets	290,345	321,686	375,319	365,725	338,516
Average total asset		306,015.5	348,502.5	370,522	352,120.5
Net income	53,394	45,687	48,351	59,531	55,256
Total shareholder's equity	119,355	128,249	134,047	107,147	90,488
Average total shareholder's equity		123,802	131,148	120,597	98,817.5
Operating return on asset		**19.61%**	**17.60%**	**19.13%**	**18.16%**
Return on asset		**14.93%**	**13.87%**	**16.07%**	**15.69%**
Return on equity		**36.90%**	**36.87%**	**49.36%**	**55.92%**

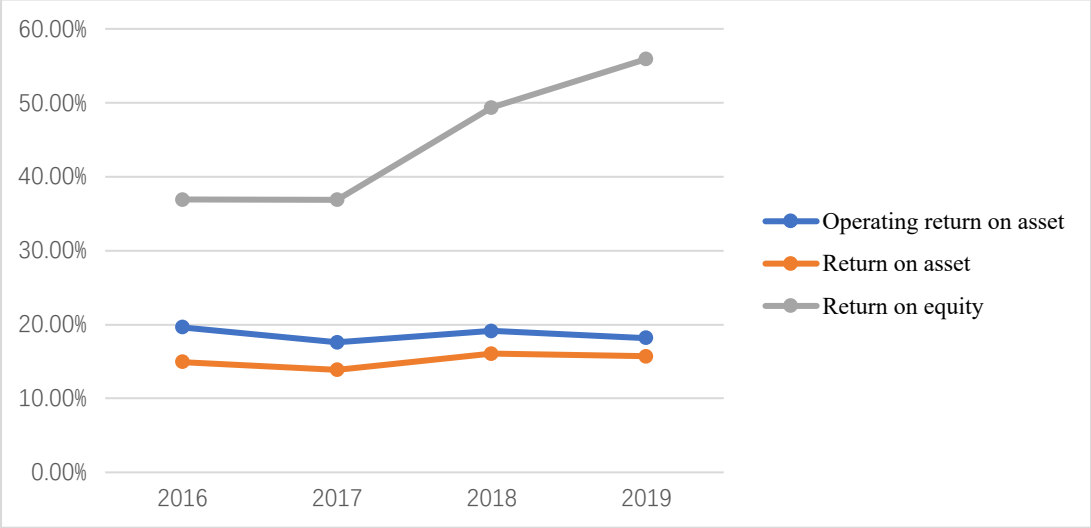
Source: Annex 1: Balance Sheet and Annex 2: Income statement

Return on assets under management is how much return you get for each dollar invested. Higher ratios mean higher profits. From 2016 to 2019, the ratio is stable, at 18.5%. In 2019, the ratio was 18.16 percent, or $0.1816 for every dollar spent on Apple's behalf, but the ratio fell to 0.79 percent from a year earlier.

The return on assets basically tells us what returns are generated from investing capital. The return on asset data gives investors an idea of how well companies are converting their investment money into net income. The higher this ratio number, the better, because the company earns more revenue by investing less. From 2016 to 2019, the change of this ratio is not large, and it reaches the maximum value of 16.07% in 2018. There was a decrease in 2019, with a decrease of 0.38% compared with 2018 and a rise of 0.76% compared with 2016.

It represents the return on asset reinvestment. In general, Apple's return on equity ratio rose from 2016 to 2019, up 6.56% in 2019 and 19.02% in 2016.

Figure 4.6: Return on asset and return on equity trend



Source: Table 4.7

Figure 4.6 shows us the trend of Apple's return on asset and return on equity. From 2016 to 2017, Apple's return on assets declined briefly; From 2017 to 2018, rising; It fell again between 2018 and 2019, but only slightly. By definition, return on assets is a measure of how a company uses its assets to get the most revenue. In chapter 2, we mentioned that the higher the return on assets, the better the company's business condition. Therefore, from 2016 to 2019, the worst operating condition in 2017 and the best in 2018.

Apple's return on equity fell 0.03% between 2016 and 2017; Apple's return on equity rose rapidly between 2017 and 2019. The main reason is that Apple's average shareholder 's equity has declined from 2017 to 2019. According to the definition in chapter 2, we know that return on equity is a measure of the profits a company makes from using the assets of its shareholders. Therefore, investors prefer high return on equity. Because it shows that the company can use investors' money more efficiently and investors take less risk. From 2016 to 2017, shareholders received the least revenue in 2017 and the most in 2019.

Table 4.8: Compare Apple, Huawei and SONY (2018-2019)

	Apple		Huawei		SONY	
	2018	2019	2018	2019	2018	2019
Operating return on asset	19.13%	18.16%	12.52%	10.21%	3.94%	4.47%
Return on asset	16.07%	15.69%	10.14%	8.22%	2.63%	4.58%
Return on equity	49.36%	55.92%	29.04%	23.71%	14.25%	22.67%

Source: Annual reports of Apple from 2017 to 2019. Annual reports of Huawei from 2017 to 2019. Annual reports of SONY from 2017 to 2019.

From operating return on asset and return on asset, we can know that Apple and Huawei's ratios are both decline from 2018 to 2019. And SONY' ratios is rising. But Apple's the number of operating returns on asset and return on asset are biggest of all in 2019. It means Apple gets the most profit for every dollar invested.

Apple and SONY's return on equity are both increasing from 2018 to 2019. But Huawei's return on equity is decline. In 2019, Apple's return on equity is the biggest one, second is Huawei then SONY. It means investors prefer invest Apple Inc. cause its return is most.

4.5 DuPont analysis

In this part, we will use Dupont analysis to calculate return on asset (ROA) and return on equity (ROE). The ROA is calculated according to formula (2.30) (2.31) (2.32) and (2.33). The ROE is calculated according to formula (2.34) and (2.35).

For example, the ROA is 15.69% in 2019.

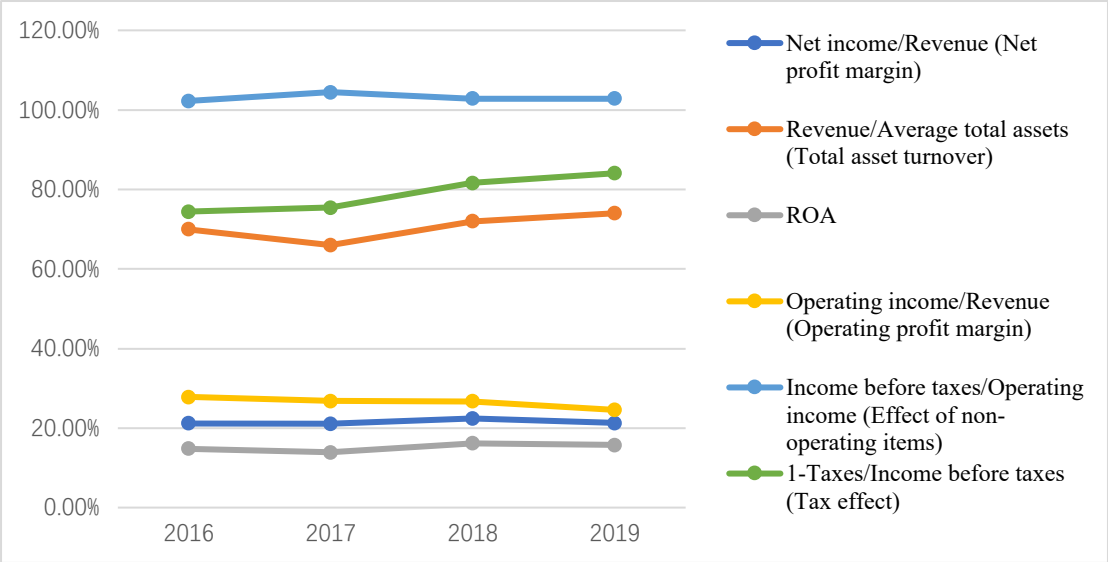
$$ROA = \frac{Net\ income}{Average\ total\ assets} = \frac{Net\ income}{Revenue} \times \frac{Revenue}{Average\ total\ assets}$$

$$15.69\% = \frac{\$\ 55{,}256}{\$\ 260{,}174} \times \frac{\$\ 260{,}174}{\$\ 352{,}120.5}$$

Table 4.9: The components of ROA and ROE (in million, USD)

	2015	2016	2017	2018	2019
Net sales	233,715	215,639	229,234	265,595	260,174
Net income	53,394	45,687	48,351	59,531	55,256
Operating income	71,230	60,024	61,344	70,898	63,930
Income before taxes	72,515	61,372	64,089	72,903	65,737
Taxes	19,121	15,685	15,738	13,372	10,481
Average total assets		306,015.5	348,502.5	370,522	352,120.5
Average total shareholder's equity		123,802	131,148	120,597	98,817.5
Net income/Revenue (Net profit margin)	**22.85%**	**21.19%**	**21.09%**	**22.41%**	**21.24%**
Revenue/Average total assets (Total asset turnover)		**0.70**	**0.66**	**0.72**	**0.74**
Operating income/Revenue (Operating profit margin)	**30.48%**	**27.84%**	**26.76%**	**26.69%**	**24.57%**
Income before taxes/Operating income (Effect of non-operating items)	**101.80%**	**102.25%**	**104.47%**	**102.83%**	**102.83%**
1-Taxes/Income before taxes (Tax effect)	**73.63%**	**74.44%**	**75.44%**	**81.66%**	**84.06%**
Average total assets/Average shareholder's equity		**2.47**	**2.66**	**3.07**	**3.56**
ROA		**14.83%**	**13.92%**	**16.14%**	**15.72%**
ROE		**36.64%**	**37.03%**	**49.54%**	**55.95%**

Figure 4.7: ROA and its components trend

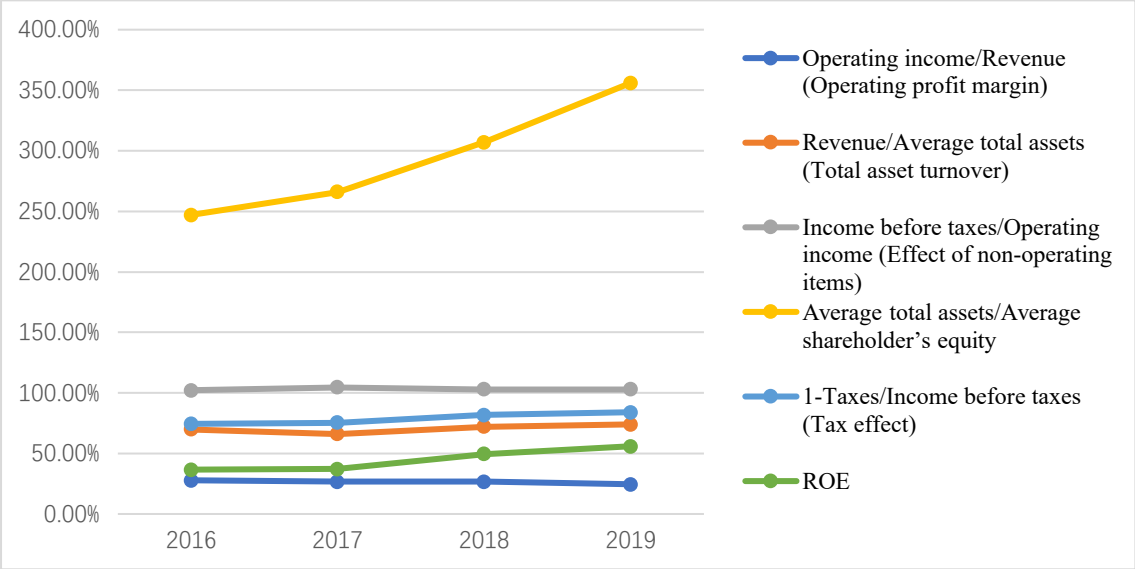


From table 4.9 and figure 4.7, we can know that net profit margin is stable in recent five years. It was roughly stable at 21.5% from 2016 to 2019. And we find that Apple's net profit margin than the level of the same industry through search, it reflects the gross profit of Apple's products is high. Total asset turnover fluctuates a lot, it is in the trough in 2017, but from 2017 to 2019, it is on the rise.

Operating profit margin is decline from 2016 to 2019. It reflects two reasons one of that is Apple's operating costs of sales is rising. Second is Apple's sales is not good than before. Effect on non-operating items is stable and it is the biggest one of all data. It is roughly stable at 102% from 2016 to 2019. Tax effect is rising from 2016 to 2019.

ROA does not change much; it is in trough in 2017. It means the return of Apple's investment is lowest in 2017. And it declined from 2018 to 2019. As we explain in chapter 2. The ROA figure gives investors an idea of how efficiency the company is in converting the money it invests into net income. So, it means the efficiency of operating decreased from 2018 to 2019.

Figure 4.8: ROE and its components trend



We already explained the trend of operating profit margin, effect of non-operating items, tax effect above.

From table 4.9 and figure 4.8, we can see that total asset turnover is rising from 2017 to 2019 but does not change so much. It reflects Apple's total assets is decreasing or the revenue increasing much. The average total assets/average shareholder's equity various a lot, we can clearly see that it continues to rise from 2016 to 2019. It at 365% in 2019 which is biggest one. It means the shareholder's equity of Apple decreased. This may be related to the plummeting of Apple's stocks and securities in end of 2018.

The trend of ROE is similar with the trend of average total assets/average shareholder's equity. It continued to rise from 2016 to 2019. It reaches the highest point in 2019 which is 55.95%. Think of we mentioned in chapter 2, we explain that ROE measures how efficiency the company is to make investments become profit. And we through searches, we find that the ROE of Apple is much higher than same industry's level. It reflects Apple is more attractive to investors.

5 Conclusion

This paper analyzes Apple's financial statements. The main purpose of this article is to assess Apple's financial position and investment risk. We evaluate through financial analysis, including common scale analysis and financial ratio analysis.

Through the analysis of Apple's financial statements, we can find the following points:

In 2019, the sales of iPhone, iPad and Mac are not as high as before, but the service business and sales of Apple's accessories and home appliances are quickly rising, which is the focus of Apple's development. Innovation is very important to Apple, which is not only reflected in the annual increase of Apple's R&D expenditure, but also reflected in the declining popularity of Apple products in recent years. Apple needs new products to stimulate consumer demand. China and Europe are both big market, and Apple can use more preferential policies in this area. Apple needs to control the cost of sales. Apple is in good shape, but its earnings have weakened from 2018 to 2019. Apple is still the leader in the industry. In terms of profitability, return on assets and return on equity, Apple is above the industry average. At the end of 2018, Apple's stock plunged. But it has picked up in 2019.

Here are some of our Suggestions:

Apple needs to develop and produce 5G phones as soon as possible. Because other companies in the industry, such as Huawei, VIVO has produced 5G phones. The delay in Apple's 5G phones is bound to be a huge blow to iPhone sales. Apple also needs to be more transparent with consumers. Due to the outstanding performance of the service business, Apple can improve the service system and users experience of the service business. Investors can invest in Apple stock, and I believe in 2020, Apple stock will have a new breakthrough.

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List of Abbreviations

CEO: Chief Executive Officer

R&D: Research and Development

ROA: Return on Asset

ROE: Return on Equity

USD: United States Dollar

RMB: Chinese monetary

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Declaration of Utilization of Results from a Bachelor Thesis

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Ostrava dated 10.05.2020

李鉑洋

Boyang Li

List of Annexes

Annex

BALANCE SHEET

(In million, USD)

	2015	2016	2017	2018	2019
Current assets					
Cash and cash equivalent	21,120	20,484	20,289	25,913	48,844
Short-term marketable securities	20,481	46,671	53,892	40,388	51,713
Accounts receivable, net	16,849	15,754	17,874	23,186	22,926
Inventories	2,349	2,132	4,855	3,956	4,106
Vendor non-trade receivables	13,494	13,545	17,799	25,809	22,878
Other current assets	15,085	8,283	13,936	12,087	12,352
Total current assets	89,378	106,869	128,645	131,339	162,819
Non-current assets					
Long-term marketable securities	164,065	170,430	194,714	170,799	105,341
Property, plant and equipment, net	22,471	27,010	33,783	41,304	37,378
Other non-current assets	14,431	17,377	18177	22,283	32,978
Total non-current assets	200,967	214,817	246,674	234,386	175,697
Total assets	290,345	321,686	375,319	365,725	338,516
Current liabilities					
Accounts payable	35,490	37,294	49,049	55,888	46,236
Other current liabilities	25,181	22,027	25,744	33,327	37,720
Deferred revenue	8,940	8,080	7,548	5,966	5,522
Commercial paper	8,499	8,105	11,977	11,964	5,980
Short-term debt	2,500	3,500	6,496	8,784	10,260
Total current liabilities	80,610	79,006	100,814	115,929	105,718

Non-current liabilities					
Long-term debt	53,329	75,427	97,207	93,735	91,807
Other non-current liabilities	37,051	39,004	43,251	48,914	50,503
Total non-current liabilities	90,380	114,431	140,458	142,649	142,310
Total liabilities	170,990	193,437	241,272	258,578	248,028
Shareholders' equity					
Common stock	27,416	31,251	35,867	40,201	45,174
Retained earnings	92,284	96,364	98,330	70,400	45,898
Accumulated other comprehensive income/(loss)	(345)	634	(150)	(3,454)	(584)
Total shareholders' equity	119,355	128,249	134,047	107,147	90,488
Total liabilities and shareholders' equity	290,345	321,686	375,319	365,725	338,516

INCOME STATEMENT

(In million, USD)

	2015	2016	2017	2018	2019
Net sales	233,715	215,639	229,234	265,595	260,174
Cost of sales	140,089	131,376	141,048	163,756	161,756
Gross margin	93,626	84,263	88,186	101,839	98,392
Operating expenses					
Research and development	8,067	10,045	11,581	14,236	16217
Selling, general and administration	14,329	14,194	15,261	16,705	18,245
Total operating expenses	22,396	24,239	26,842	30,941	34,462
Income					
Operating income	71,230	60,024	61,344	70,898	63,930
Other income/(expense), net	1,285	1,348	2,745	2,005	1,807
Income before provision for income taxes	72,515	61,372	64,089	72,903	65,737
Provision for income taxes	19,121	15,685	15,738	13,372	10,481
Net income	53,394	45,687	48,351	59,531	55,256

CASH FLOW

(In million, USD)

	2015	2016	2017	2018	2019
Cash, cash equivalents and restricted cash, beginning balances	13,844	21,120	20,484	20,289	25,913
Cash generated by operating activities	81,266	65,824	64,225	77,434	69,391
Cash generated by/ (used in) investing activities	(56,274)	(45,977)	(46,446)	16,066	45,896
Cash used in financing activities	(17,716)	(20,483)	(17,974)	(87,876)	(90,976)
Increase/(Decrease) in cash, cash equivalents and restricted cash	7,276	(636)	(195)	5,624	24,311
Cash, cash equivalents and restricted cash, ending balances	21,120	20,484	20,289	25,913	50,224
Cash paid for income taxes, net	13,252	10,444	11,591	10,417	15,263
Cash paid for interest	514	1,316	2,092	3,022	3,423

OPERATING SEGMENTS

(In million, USD)

	2015	Change	2016	Change	2017	Change	2018	Change	2019
Americas	93,864	(8%)	86,613	12%	96,600	16%	112,093	4%	116,914
Europe	50,337	(1%)	49,952	10%	54,938	14%	62,420	(3%)	60,288
Greater China	58,715	(17%)	48,492	(8%)	44,764	16%	51,942	(16%)	43,678
Japan	15,706	8%	16,928	5%	17,733	23%	21,733	(1%)	21,506
Rest of Asia Pacific	15,093	(10%)	13,654	11%	15,199	15%	17,407	2%	17,788
Total net sales	233,715	(8%)	215,639	6%	229,234	16%	265,595	(2%)	260,174

PRODUCT SUMMARY

(In million, USD)

	2015	Change	2016	Change	2017	Change	2018	Change	2019
iPhone	155,041	(12%)	136,700	3%	141,319	17%	164,888	(14%)	142,381
iPad	23,277	(11%)	20,628	(7%)	19,222	(4%)	18,380	16%	21,280
Mac	25,471	(10%)	22,831	13%	25,850	(3%)	25,198	2%	25,740
Services	19,909	22%	24,348	23%	29,980	33%	39,748	16%	46,291
Other Products	10,067	11%	11,132	16%	12,863	35%	17,381	41%	24,482
Total net sales	233,715	(8%)	215,639	6%	229,234	16%	265,595	(2%)	260,174